BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 14,9 d Edition : 13.05.87 : 12.9.86 Replaces Test oil : ISO-4113 Combination no. : 0 402 048 702 Injection pump Pump designation : PES8P120A320RS3146 EP type number : 0 412 028 702 Governor Governor design.: RQ275/950PA753 Governer no. : 0 421 801 282 Customer-spec. information Customer : RVI Engine : MIVR083530 : 294.0 1st version kW Rated speed : 1900 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,8 : 1 680 750 067 Test lines Outside diameter

x Wall thickness : 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00 : 1-8-4-2-7-3-Firing order

6- 5

: 0-45-90-135-180-225-Phasing

270-315 Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 500 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 20.8...21.0

100 s: (20.5...21.3)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -2

Speed rpm : 950

Rack travel in mm : 16.60...18.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 500 Speed Aneroid pressure h: 700

Del.quantity : 208.0...210.0

1000 : (205.0...213.0) cm3 : 5.00 1000 : (9.00)

Spread

RATED SPEED

1st version

Setting point:

Speed rpm: 950 Rack travel in mm: 17.4

Testing:

1st rack travel in: 10.50

Speed rpm : 1000...1015

A01

2nd rack travel in: 4.50

Speed rpm : 1070...1100

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 8.0

Testing:

Speed rpm : 200

Minimum rack trave: 6.70

Speed rpm : 275 Rack travel in mm : 4.60...4.80

Rack travel in mm : 2.00 Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : 0.58

Torque control curve - 1st version

1st speed rpm : 500

Rack travel in m: 12.70...12.80

2nd speed rpm : 950

Rack travel in m: 11.40...11.50

3rd speed rpm : 675

Rack travel in m: 12.40...12.60

4th speed rpm : 810

Rack travel in m: 11.70...12.00

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 700

Rack travel mm : 12.70...12.80

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 360

Rack travel in m: 12.70...12.80

3rd pressure hPa : 140

Rack travel in m: 10.30...10.70

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 950

A02

Del.quantity cm3/: 190.0...194.0

1000 s: (187.0...197.0)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 119.0...121.0

1000 s: (116.0...124.0)

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...180.0

1000 s: (156.0...184.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 17.0...23.0

1000 s: (14.0...26.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 11.5° cam angle

after start of delivery cyl. 1

Note remarks

Test sheet : SSC 13,7 a : 30.05.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 048 706

Injection pump

Pump designation : PES8P120A520/4RS3211

EP type number : 0 412 028 706

Governor

Governor design. : RQV300...1250PA639-1

Governer no. : 0 421 813 458

Customer-spec. information Customer : SSCM

Engine : UD 18-V18

1st version kW : 394.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Quinaq0

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order

: 1- 2- 6- 3- 4- 5-7- 8

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1250 1st speed

Rack travel in mm : 13.30...13.40

Del.quantity cm3/: 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 8.1...8.3 Del.quantity cm3/: 2.0...2.6

100 s: (1.7...2.9)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.30...1.50 travel mm

rpm : 1000 2nd speed

travel mm : 5.70...6.00

rpm : 1250 3rd speed

travel mm : 7.80...8.00

GUIDE SLEEVE POSITION

Speed rpm : 1305 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 199.0...201.0 Del.quantity

1000 : (196.0...204.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 12.30

Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 13...21

Testing:

Speed rpm : 100 Minimum rack trave: 9.70 Speed rpm : 300

Rack travel in mm : 8.10...8.30

Rack travel in mm: 2.00

CONSTANT REGULATION

rpm : 350...460 Speed

START CUT-OUT

Speed 1/min: 220 (240)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30

Speed rpm : 1290...1300

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 230.0...250.0 1000 s: (226.0...254.0)

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.70...2.80 Prestroke mm : (2.65...2.85) Rack travel in mm: 10.50 Note remarks Firing order : 1-8-4-2-7-3-6-5 : IHC 9,4 a13 : 24.8.89 Test sheet Edition Replaces : ISO-4113 Test oil : 0-45-90-135-180-225-Phasing 270-315 Tolerance + - 0 Combination no. : 0 402 058 038 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES8P100A921/5RS286 EP type number : 0 412 008 025 BASIC SETTING Governor Governor design. : RQV300...1300PA308KR 1st speed rpm: 1300 Governer no. : 0 421 815 102 Rack travel in mm : 12.15...12.25 Customer-spec. information Customer : IHC Del.quantity cm3/: 13.8...14.0 Engine : DVT 800 100 s: (-) 1st version kW : 257.6 Spread cm3 : 0.4 : 2600 Rated speed 100 s: (-) TEST BENCH REQUIREMENTS rpm : 300 2nd speed Test oil Rack travel in mm : 4.90...5.10 inlet temp. OC : 38...42 Del.quantity cm3/: 1.6...2.0 100 s: (-) Overflow valve Spread cm3 : 0.3: 1 417 413 040 100 s: (-) FULL LOAD DELIV. AT FULL LOAD STOP Inlet press., bar: 2.80 Test nozzle holder 1st version : 1 688 901 004 rpm : 1300 assembly Speed Ameroid pressure h: 800 Del.quantity : 138.0...140.0 1000 : (-) Opening. : 207...210 pressure, bar : 4.0 Spread cm3 1000 : (-) Orifice plate diameter mm : 0,6 RATED SPEED Test lines : 9 681 230 713 1st version Control lever Outside diameter position degrees: 62...70 x Wall thickness : 6,35x2,00x1016 x Length mm Testing: 1st rack travel in: 11.20 (A) Injection pump setting values rpm : 1340...1350 Speed Insp. values in parentheses 2nd rack travel in: 3.65 Set equal delivery quant. Speed rpm : 1505...1535

4th rack travel in: 1640

Speed

LOW IDLE 1 Control lever

rpm : 0.00...1.00

A05

per values ____

BEGINNING OF DELIVERY

position degrees: 6...14

Testing:

rpm : 100 Speed Minimum rack trave: 7.00 rpm : 300 Speed

Rack travel in mm : 4.10...6.20

Rack travel in mm: 1.45

rpm : 490...510 Speed

rpm : 580 Speed Maximum rack trave: 1.10

TORQUE CONTROL

Dimension a mm : 1300

Torque control curve - 1st version

1st speed rpm : 1300 Rack travel in m: 12.20...12.30

2nd speed rpm : 900

Rack travel in m: 11.70...11.80

3rd speed rpm : 700

Rack travel in m: 11.20...11.30

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 800 Speed hPa : 160 Pressure

Rāck travel mm : 8.40...8.50

Measurement

1/min: 800 Speed

1st pressure hPa : 613

Rack travel in m: 11.70...11.80

START CUT-OUT

1/min : 170...230 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 900 Speed

Del.quantity cm3/: 132.0...138.0

1000 s: (-)

Spread cm3: 4.0

1000 s: (-)

Aneroid pressure h: -Speed rpm : 800 Del.quantity cm3/ : 89.0...97.0 1000 s: (-)

Spread cm3: 4.0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 1340...1360

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 188.0...228.0 1000 s: (-) Rack travel in mm: 21.00

Remarks:

Start-of-delivery mark is at start of

delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.70...2.80 Prestroke mm : (2.65...2.85) Rack travel in mm: 10.50 Note remarks Firing order : 1-8-4-2-7-3-6-5 Test sheet Edition : IHC 9,4 a12 : 24.8.89 Replaces Test oil : ISO-4113 : 0-45-90-135-180-225-Phasing 270-315 Tolerance + - 0 : 0.50 (0.75) Combination no. : 0 402 058 039 Injection pump Time to cyl. no. : 1 Pump designation : PES8P100A921/5RS286 EP type number : 0 412 008 025 BASIC SETTING Governor Governor design. : RQV300...1300PA309KR 1st speed rpm: 1300 Governer no. : 0 421 815 101 Rack travel in mm : 11.25...11.35 Customer-spec. information Customer Del.quantity cm3/: 12.9...13.1 : DVT 800 Engine 100 s: (-) 1st version kW : 245 cm3 : 0.4Spread : 2600 Rated speed 100 s: (-) TEST BENCH REQUIREMENTS rpm : 300 2nd speed Rack travel in mm : 4.90...5.10 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.7...2.3 100 s: (-) Overflow valve Spread cm3 : 0.6: 1 417 413 040 100 s: (-) Inlet press., bar: 2.80 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder 1st version assembly : 1 688 901 004 Speed rpm : 1300 Aneroid pressure h: 800 Del.quantity : 129.0...131.0 1000 : (-) Opening pressure, bar : 207...210 cm3 : 4.0 Spread 1000 : (-) Orifice plate diameter mm : 0,6 RATED SPEED : 9 681 230 713 Test lines 1st version Control lever Outside diameter position degrees: 62...70 x Wall thickness x Length mm : 6,35x2,00x1016 Testing: 1st rack travel in: 10.30 (A) Injection pump setting values

Speed rpm : 1340...1350

2nd rack travel in: 3.65

Speed rpm : 1505...1535

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 7.00 Speed rpm : 300

Rack travel in mm : 4.10...6.20

Rack travel in mm: 1.45 rpm : 490...510 rpm : 580 Speed

Speed Maximum rack trave: 1.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.30...11.40

2nd speed rpm : 900

Rack travel in m: 11.30...11.40

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 206.6 Speed Pressure Rack travel mm

Measurement

Speed 1/min: 500

1st pressure hPa : 519.8 Rack travel in m: **

START CUT-OUT

1/min: 170...230 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 900 Speed

Del.quantity cm3/: 127.5...133.5

1000 s: (-)

Spread cm3 : 4.0 1000 s: (-)

Aneroid pressure h: -

rpm : 800 Speed

Del.quantity cm3/: 103.0...111.0 1000 s: (-)

cm3 : 4.0 Spread 1000 s: (-)

BREAKAWAY

1st version

80A

1mm rack travel less than

full load rack tr: 10.30

Speed rpm : 1340...1360

STARTING FUEL DELIVERY

Speed rpm: 100
Del.quantity cm3/: 170.0
1000 s: (-)
Rack travel in mm: 21.00

Remarks:

Start-of-delivery mark is at start of

delivery of cylinder 1

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung

Note remarks

Test sheet

: IHC 9,4 a11 : 24.8.89

Edition

Replaces Test oil

: ISO-4113

Combination no. : 0 402 058 040

Injection pump

Pump designation : PES8P100A921/5RS286

EP type number : 0 412 008 025

Governor

Governor design. : RQV300...1300PA304KR

Governer no.

: 0 421 815 099

Customer-spec. information Customer

: IHC

Engine

: DVT 800

1st version kW : 220.8

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC

: 38...42

Overflow valve

: 1 417 413 040

Inlet press., bar : 2.80

Test nozzle holder

assembly

: 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm

: 0,6

Test lines : 9 681 230 713

Outside diameter

x Wall thickness

x Length mm

: 6,35x2,00x1016

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm

: 2.70...2.80

: (2.65...2.85)

Rack travel in mm: 10.50

Firing order : 1-8-4-2-7-3-6-5

Phasing

: 0-45-90-135-180-225-

270-315

Tolerance + - 0

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed ___rpm : 1300

Rack travel in mm : 10.15...10.25

Del.quantity cm3/: 11.4...11.6

100 s: (-) -----

Spread cm3 : 0.3

100 s: (-)

rpm : 300

2nd speed Rack cravel in mm : 4.90...5.10

Del.quantity cm3/: 1.7...2.1

100 s: (-) cm3 : 0.3

Spread

100 s: (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 800

Del.quantity : 114.0...i16.0 1000 : (-) Spread cm3 : 3.0 1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 9.20

Speed rpm : 1340...1350

2nd rack travel in: 3.65

Speed rpm : 1505...1535

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14 Testing: Speed rpm : 100 Minimum rack trave: 7.00 Speed rpm: 300
Rack travel in mm: 4.10...6.20
Rack travel in mm: 1.45 rpm : 490...510 Speed : 680 Speed rpm Maximum rack trave: 1.10 TORQUE CONTROL Dimension a mm : 1300 Torque control curve - 1st version 1st speed rpm : 1300 -Rack travel in m: 10.20...10.30 2nd speed rpm : 900 Rack travel in m: 10.40...10.60 3rd speed rpm : 700 Rack travel in m: 10.10...10.30 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom Pressure hPa : 133 Rack travel mm : * Measurement Speed 1/min: 500 1st pressure hPa : 506.5 Rack travel in m: ** START CUT-OUT 1/min: 170...230 Speed

FUEL DELIVERY CHARACTERISTICS Aneroid pressure h: 800 rpm : 900 Del.quantity cm3/: 118.0...124.0 1000 s: (-) cm3 : 4.01000 s: (-) Aneroid pressure h: -Speed rpm: 800 Del.quantity cm3/: 84.0...88.0 1000 s: (-) cm3 : 4.0 1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 1340...1360

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 184.0...224.0 1000 s: (-)

Rack travel in mm: 21.00

Remarks: FEHLENDEN TEXT ÜBERSETZEN у у

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung

1st version

Speed

Spread

Spread

Note remarks

Test sheet : IHC 9,4 a10 : 24.8.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 058 041

Injection pump

Pump designation : PES8P100A921/5RS286

EP type number : 0 412 008 025

Governor

Governor design. : RQV300...1300PA305KR

Governer no. : 0 421 815 100

Customer-spec. information

Customer : IHC

: DVT 800 Engine

1st version kW : 20.6 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 040

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 004 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 9 681 230 713

Outside diameter x Wall thickness

: 6,00x1,50x1016 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.70...2.80

: (2.65...2.85)

Rack travel in mm: 10.50

Firing order : 1-8-4-2-7-3-6-5

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 9.50...9.60

Del.quantity cm3/: 10.7...10.9

100 s: (-) -------

Spread cm3 : 0.4

100 s: (-)

rpm : 300 2nd speed

Rack cravel in mm : ?

Del.quantity cm3/: 1.5...2.1

100 s: (-) cm3 : 0.6

Spread 100 s: (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 800

Del.quantity : 107.0...109.0

1000 : (-) cm3 : 4.0

Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.50

Speed rpm : 1340...1350

2nd rack travel in: 3.65

Speed rpm : 1505...1535

4th rack travel in: 1640

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever position degrees: 6...14

Testing:

rpm : 100 Speed Minimum rack trave: 7.00 Speed rpm : 300

Rack travel in mm : 4.10...6.20

Rack travel in mm : 1.45 Speed rpm : 490...510 rpm : 580 Speed Maximum rack trave: 1.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 9.50...9.60 2nd speed rpm : 850

Rack travel in m: 11.80...12.00

3rd speed rpm : 700

Rack travel in m: 10.40...10.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed T D M hPa : 200 Pressure Rack travel mm

Measurement

Speed 1/min: 500

1st pressure hPa : 600 Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 850 Speed

Del.quantity cm3/: 128.0....134.0

1000 s: (-) cm3 : 5.0

1000 s: (-)

Aneroid pressure h: rpm : 800 Speed

Del.quantity cm3/: 83.0...91.0

1000 s: (-)

BREAKAWAY

Spread

1st version 1mm rack travel less than

full load rack tr: 8.50

Speed rpm : 1340...1350

A12

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 187.0...227.0

1000 s: (-)

Rack travel in mm: 21.00

LOW IDLE

rpm : 300 Speed

Del.quantity cm3/: 15.0...21.0 1000 s: (-)

cm3 : 6.0 Spread

1000 s: (-)

Remarks:

FEHLENDEN TEXT ÜBERSETZEN у у

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung

Note remarks

: DEE 7,7 k Test sheet : 30.8.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 005

Injection pump

Pump designation : PES6P100A720RS1010

EP type number : 0 412 006 004

Governor

Governor design. : RSV400...1050P2/370D

: 0 421 835 046 Governer no.

Customer-spec. information : JOHN DEERE

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00x1,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.40...2.50 Prestroke mm

: (2.35...2.55)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-160-240-300 Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.75...12.85

Del.quantity cm3/: 14.8...15.0

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 1.9...2.5

100 s: (-) cm3 : 0.3

Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 1000

Rack travel in mm : 0.20...1.20

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 800

Del.quantity : 148.0...150.0

1000 : (-)

cm3 : 3.0Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing:

1st rack travel in: 11.80

Speed rpm : 1085...1095

2nd rack travel in: 4.50

Speed rpm : 1135...1165 4th rack travel in: 1260

rpm : 0.30...1.50 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm: 400

Rack travel in mm: 6.20

A13

Testing:

Speed : 200 rpm Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 7.10...7.30

Rack travel in mm : 2.80

rpm : 590...610 rpm : 750 Speed Speed Maximum rack trave: 1.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.80...12.90

2nd speed rpm : 750

Rack travel in m: 13.60...13.80

3rd speed rpm : 500

Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting

: 550 Speed rpm Pressure hPa : 186.6

Rack travel mm * *

Measurement

Speed 1/min : 550

1st pressure hPa : 526.5

Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 750 Speed

Del.quantity cm3/: 164.5...167.5

1000 s: (-)

cm3 : 4.0 Spread

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 550 Del.quantity cm3/ : 108.0...116.0

1000 s: (-)

cm3 : 4.0 Spread

1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80

rpm : 1085...1095 Speed

A14

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 160.0...190.00

1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version

rpm : 1155 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 24.0...32.0

1000 s: (-)

cm3 : 4.0 Spread 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 19.0...25.0 1000 s: (-)

cm3 : 3.0

Spread 1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure

compensator) movement

** Ende der LDA-Bewegung

Start-of-delivery mark is at start of delivery of cylinder 1

Note remarks

: DEE 7.7 k 3 : 24.8.89 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 006

Injection pump

Pump designation : PES6P100A720RS1010

EP type number : 0 412 006 004

Governor

Governor design. : RSV400...1050P2/367D

: 0 421 835 045 Governer no.

Customer-spec. information

Customer : JOHN DEERE

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.40...2.50

: (2.35...2.55)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-160-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

A15

1st speed rpm : 1050

Rack travel in mm : 12.45...12.55

Del.quantity cm3/: 14.1...14.3

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 2.0...2.6

100 s: (-)

cm3 : 0.3Spread

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 1000 Speed

Rack travel in mm : 0.20...1.20

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 800

: 141.7...143.7 Del.quantity

1000 : (-)

cm3 : 3.0 Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing:

1st rack travel in: 11.50

rpm : 1085...1095 Speed

2nd rack travel in: 4.50

Speed rpm : 1135...1165

4th rack travel in: 1260

rpm : 0.30...1.50 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

: 400 rpm

Rack travel in mm: 6.60

Testing: Speed rpm : 200 Minimum rack trave: 19.00 Speed rpm: 400 Rack travel in mm : 7.00...7.20
Rack travel in mm : 2.75 Speed грт : 590...610 rpm Speed : 750 Maximum rack trave: 1.20 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.50...12.60 2nd speed rpm: 750 Rack travel in m: 13.30...13.50 3rd speed rpm : 500 Rack travel in m: 13.30...13.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 550 rpm Pressure hPa : 186.6 Rack travel mm : * Measurement 1/min : 550 Speed 1st pressure hPa : 526.5 Rack travel in m: ** FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800 Speed rpm : 750 Del.quantity cm3/: 159.0...162.0 1000 s: (-) Spread cm3 : 4.0 1000 s: (-) Aneroid pressure h: -Speed rpm : 550 Del.quantity cm3/: 108.0...116.0 1000 s: (-) cm3 : 4.0 Spread 1000 s: (-) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 Speed rpm : 1085...1095

A16

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 160.0...190.00 1000 s: (-)

Rack travel in mm: 21.00

HIGH IDLE

1st version Speed rpm: 1155
Rack travel in mm: 5.90
Del.quantity cm3/: 25.0...35.0

1000 s: (-) cm3 : 4.0Spread 1000 s: (-)

LOW IDLE

Speed rpm : 400 Rack travel in mm : 6.60...6.80 Del.quantity cm3/ : 20.6...26.6 1000 s: (-)

cm3 : 3.0Spread 1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung Start-of-delivery mark is at start of delivery of cylinder 1

Note remarks

Test sheet : DEE 7,7 k 2 Edition : 24.8.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 011

Injection pump

Pump designation : PES6P100A720RS1010

EP type number : 0 412 006 004

Governor

Governor design. : RSV400...1050P7/413D

Governer no. : 0 421 835 073

Customer-spec. information Customer : JOHN DEERE

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2.35...2.45 Prestroke mm

: (2.30...2.50)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-160-240-300 Phasing Tolerance + - 0

: 0.50 (0.75)

Time to cyl. no. : 1

A17

BASIC SETTING

rpm: 1040 1st speed

Rack travel in mm: 13.05...13.15

Del.quantity cm3/: 14.8...15.0

100 s: (-)

cm3 : 0.3Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 7.00...7.20 Del.quantity cm3/: 1.6...2.0

100 s: (-) cm3 : 0.3

Spread 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

008 : man Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1040 Speed

: 148.8...150.8 Del.quantity

1000 : (-) cm3 : 3.0

Spread 1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 12.10

Speed rpm : 1065...1075

2nd rack travel in: 4.90

rpm : 1095...1125 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

rpm : 400 Speed

Rack travel in mm: 6.70

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 460 Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00 rpm : 450...500 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1040

Rack travel in m: 13.10...13.20 2nd speed rpm : 750

Rack travel in m: 13.60...14.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 163.5...166.5 1000 s: (-)

cm3 : 4.0 1000 s: (-) Spread

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0

1000 s: (-)

Rack travel in mm: 21.00

HIGH IDLE

1st version

Speed rpm : 11*5*5 Rack travel in mm : 5.90

Del.quantity cm3/ : 25.0...35.0

1000 s: (-)

Spread cm3 : 4.0

1000 s: (-)

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 20.6...26.6

1000 s: (-)

cm3 : 3.0 Spread

1000 s: (-)

Remarks:

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : DEE 10,1 d9 Edition : 24.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 027

Injection pump

Pump designation : PES6P100A720RS296

EP type number : 0 412 016 037

Governor

Governor design. : RSV400...1050P0/414D

Governer no. : 0 421 835 071

Customer-spec. information

Customer : JOHN DEERE

: 6619 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85 : (2,70...2,90)
Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - D : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm: 12,80

Del.quantity cm3/: 18,7...18,8

100 s: (-)

cm3 : 0.4Spread

100 s: (-)

rpm : 400 2nd speed Rack travel in mm: 6,80

Del.quantity cm3/: 1,9...2,5

100 s: (-)

cm3 : 0.4Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 800

Del.quantity : 187,4...189,4

1000 : (-) cm3 : 4.0 1000 : (-) Spread

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 11,80

Speed rpm : 1095...1105

2nd rack travel in: 5.90 Speed rpm: 1135...1165

LOW IDLE 1 Control lever position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6,30

Testing:

Speed rpm : 100 Minimum rack trave: 19,004 Rack travel in mm : 6,70...6,90

Rack travel in mm: 2,00

rpm : 520...530 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 680 Rack travel in m: 12,80 2nd speed rpm : 500

Rack travel in m: 13,15...13,25

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 550 Speed Pressure hPa : 382.0

Rack travel mm : 10,65...10,75

Measurement

1/min : 550 Speed

1st pressure hPa : 634,0

Rack travel in m: 12,10...12,70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 630

Del.quantity cm3/: 192,8...196,8

1000 s: (-)

cm3 : 6,0 Spread 1000 s: (-)

Aneroid pressure h: -

Speed rpm : 550 Del.quantity cm3/ : 112,0...120,0

1000 s: (-)

Spread cm3 : 6,0

1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11,80

rpm : 0195...1105 Speed

A20

STARTING FUEL DELIVERY

Speed rpm : 100 Deliquantity cm3/: 170,0

1000 s: (-)

Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

Speed : 1150 rpm Rack travel in mm : 5,90 Del.quantity cm3/ : 47,0...57,0 1000 s: (-)

cm3 : 6,0 Spread 1000 s: (-)

LOW IDLE

rpm : 400 Speed Rack travel in mm: 6,80

Del.quantity cm3/: 19,0...25,0

1000 s: (-)

Spread cm3 : 4,0

1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of delivery.

Note remarks

Test sheet : DEE 10,1 h Edition : 24.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 029

Injection pump

Pump designation : PES6P110A720RS337 EP type number : 0 412 016 044

Governor

Governor design. : RSV400...1050P0/416D

Governer no. : 0 421 835 074

Customer-spec. information

Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...43

Overflow valve

: 1 457 443 014

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85

: (2,70...2,90)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm: 10,20

Del.quantity cm3/: 13,5...13,7

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 400 Rack travel in mm: 6,00 Del.quantity cm3/: 2,1...2,7

100 s: (-)

cm3 : 0.4Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1050 Speed Aneroid pressure h: 800

Del.quantity : 135,0...137,0

1000 : (-)

cm3 : 4,0 1000 : (-) Spread

RATED SPEED

1st version Control lever

position degrees: 35...43

Testing:

1st rack travel in: 9,20

Speed rpm : 1095...1105

2nd rack travel in: 9,20

rpm : 1090...1110

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Speed Rack travel in mm: 5,50

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 rpm : 400

Rack travel in mm: 5,90...6,10 Rack travel in mm: 2,00

rpm : 520...580 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750 Rack travel in m: 10,20 2nd speed rpm : 630 Rack travel in m: 10,70

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : 246,5

Rack travel mm : 9,85...9,95

Measurement

1/min: 500 Speed

1st pressure hPa : 373,2 Rack travel in m: 10,30...10,50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 Speed rpm : 630

Del.quantity cm3/: 145,0...149,0

1000 s: (-)

Spread cm3 : 6.01000 s: (-)

Aneroid pressure h: -

Speed rpm: 550
Del.quantity cm3/: 113,6...121,6
1000 s: (-)

Spread cm3 : 6.0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9,20

A22

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/ : <190.0

1000 s: (-)

Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

Aneroid pressure h: 800 Speed rpm : 1150 Rack travel in mm: 6,20
Del.quantity cm3/: 45,0...55,0
1000 s: (-)
Spread cm3: 6,0

1000 s: (-)

LOW IDLE

rpm : 400 Speed Rack travel in mm: 6,00

Del.quantity cm3/: 20,8...26,8

1000 s: (-)

Remarks:

Start-of-delivery mark at $14^{\rm O}$ angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

Note remarks

: DEE 10,1 d3 Test sheet Edition : 28.07.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 030

Injection pump

Pump designation : PES6P110A720RS296

Governor

: RSV400...1050P7/419D Governor design.

Customer-spec. information

Customer : JOHN DEERE

: 6619 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 457 413 010

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85

: (2,70...2,90)
Rack travel in mm: 9,00...12,00
Firing order: 1-5-3-6-2-4

Firing order

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,5 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1040

Rack travel in mm: 12,80

Del.quantity cm3/: 18,8...19,0

100 s: (18,6...19,2)

Spread cm3 : 0,4

100 s: (-)

2nd speed rpm : 400 Rack travel in mm: 6,30

Del.quantity cm3/: 1,90...2,50

100 s: (-)

cm3 : 0,4 Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

: 188,0...190,0 Del.quantity

1000 : (186,0...192,0)

: 4,0 cm3 Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 11,80

rpm : 1060...1070 Speed

2nd rack travel in: 5.00 Speed rpm : 1095...1125

LOW IDLE 1

Control lever

position degrees: 20...28

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 400
Rack travel in mm : 6,30
Rack travel in mm : 2,00 rpm : 450...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1040 Rack travel in m: 11,80 2nd speed rpm : 680 Rack travel in m: 11,80

3rd speed rpm: 500
Rack travel in m: 12,10...12,30

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 630 Speed

Del.quantity cm3/: 193,0...197,0 1000 s: (191,0...199,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11,80

Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170,0 1000 s: (-)

HIGH IDLE

1st version

rpm : 1100 Speed

Del.quantity cm3/: 18,00...28,00 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Del.quantity cm3/: 19,0...25,0

1000 s: (-)

Remarks:

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

Note remarks

Test sheet : DEE 7,6 1 3 Edition : 02.08.89

Replaces Test oil : ISO-4113

Combination no. : 0 402 076 NO31

Injection pump

Pump designation : PES6P110A720RS305

Governor

Governor design. : RSV400...1050P7/420D

Customer-spec. information Customer : JOHN DEERE

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2,78...2,85 : (2,70...2,90) Prestroke mm

Rack travel in mm : 9,00...12,00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - D : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1040

Rack travel in mm: 11,70

Del.quantity cm3/: 15,7...15,9

100 s: (15.5...16.1)

cm3 : 0.4Spread

100 s: (-)

rpm : 400 2nd speed Rack travel in mm: 6,00 Del.quantity cm3/: 1,9...2,5

100 s: (-)

cm3 : 0,4Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1040 Speed

Del.quantity : 157,0...159,0

1000 : (155,0...161,0)

Spread cm3 : 4,0

1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 10,70

Speed rpm : 1065...1075

2nd rack travel in: 5,00

Speed rpm : 1095...1125

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6,30 Testing:

rpm : 100 Speed Minimum rack trave: 19,00 rpm : 400 Speed

Rack travel in mm: 6,20...6,40
Rack travel in mm: 2,00
Speed rpm: 450...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 650 Rack travel in m: 12,30 2nd speed rpm : 1040 Rack travel in m: 11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 169.0...173.0 1000 s: (167.0...175.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10,70

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0 1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100 Del.quantity cm3/: 17,0...27,0 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Del.quantity cm3/: 19,0...25,0

1000 s: (-)

Remarks:

Start-of-delivery mark = 13.25° after

start of delivery cyl. 1.

Note remarks

Test sheet : DEE 10,1 a8 Edition : 24.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 032

Injection pump

Pump designation : PES6P110A720RS296 EP type number : 0 412 916 937

Governor

Governor design. : RSV400...1050P0/426D

Governer no. : 0 421 835 082

Customer-spec. information

Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85

: (2,70...2,90)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12,20

Del.quantity cm3/: 17,2...17,4

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

rpm : 400 2nd speed Rack travel in mm: 6,80 Del.quantity cm3/: 1,9...2,5

100 s: (-) Spread cm3 : 0.4

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 beea

: 172,0...174,0 Del.quantity

1000 : (-)

Spread cm3 : 4,0 1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11,20

Speed rpm : 1095...1105

2nd rack travel in: 5,90

rpm : 1135...1165 Speed

LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6,30

Testing:

Speed : 100 грm Minimum rack trave: 19,00 rpm : 400 Speed

Rack travel in mm : 6,70...6,90

Rack travel in mm : 2,00 Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 630 Rack travel in m: 12,60

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 273,2 Pressure

Rack travel mm : 9,65...9,75

Measurement

Speed 1/min: 500

1st pressure hPa : 526,5

Rack travel in m: 11,30...1,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 650 rpm

Del.quantity cm3/: 177,0...180,0

1000 s: (-) cm3 : 6,0

Spread 1000 s: (-)

: 550 Lbw

Speed Del.quantity cm3/: 84,0...92,0

1000 s: (-)

Spread cm3 : 6.0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,20

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 170,0

1000 s: (-)

Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

rpm : 1150 Speed Rack travel in mm : 5,90
Del.quantity cm3/ : 47,0...57,0
1000 s: (-)

cm3 : 6,0 Spread

1000 s: (-)

LOW IDLE

rpm : 400 Rack travel in mm: 6,80

Del.quantity cm3/: 19,0...25,0

1000 s: (-)

cm3 : 4,0Spread

1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod travel 10.5 mm and 15^0 after start of delivery.

Note remarks

Test sheet : DEE 10.1 d4 Edition : 28.07.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 033

Injection pump

Pump designation : PES6P110A720RS296

Governor

Governor design. : RSV400...1050P0/428D

Customer-spec. information

Customer

: JOHN DEERE

Engine

: 6619 A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,75...2,85 Prestroke mm

: (2,70...2,90)

Rack travel in mm: 9,00...12,00

Firing order : 1-5-36-2-4

: 0-60-120-180-240-300 Phasing Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12,00

Del.quantity cm3/: 16,45...16,65

100 s: (16,2...16,8)

cm3 : 0.4Spread

100 s: (-)

2nd speed rpm : 400 Rack travel in mm : 6,50 Del.quantity cm3/ : 1,7...2,3

100 s: (-) Spread

cm3 : 0,4100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 700

Del.quantity : 164,5...166,5

1000 : (162,0...168,0)

cm3 : 4,0 Spread 1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.00

Speed rpm : 1095...1105

2nd rack travel in: 6.30

Speed rpm : 1135...1165

LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring rpm : 400

Rack travel in mm: 6,50

Testing:

rpm : 100 Speed Minimum rack trave: 19,00 Speed rpm: 400 Rack travel in mm: 6,30 Rack travel in mm : 2,00 Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: 12,00 rpm : 850 2nd speed Rack travel in m: 12,00 3rd speed rpm : 550 Rack travel in m: 12,30

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 550 hPa : 610 Pressure

Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 550

1st pressure hPa : 80 Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 650

Del.quantity cm3/: 169,0...172,0 1000 s: (167,0...174,0)

Aneroid pressure h: rpm : 550 Speed

Del.quantity cm3/: 90.0...98.0 1000 s: (88,0...100,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11,00

rpm : 1095...1105

STARTING FUEL DELIVERY

B02

Speed rpm : 100

Del.quantity cm3/: 180,0...200,0 1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150 Del.quantity cm3/ : 48,0...58,0 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Del.quantity cm3/: 17,0...23,0

1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure compensator) movement

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

Note remarks

Test sheet : DEE 7,6 a11 Edition : 02.08.89 Replaces : Test oil : ISO-4113

Combination no. : 0 402 076 035

Injection pump

Pump designation : PES6P110A720RS361

Governor

Governor design. : RSV400...1050P2/433D

Customer-spec. information

Customer : JOHN DEERE

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85 : (2,70...2,90)
Rack travel in mm : 9,00...12,00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11,10

Del.quantity cm3/: 14,3...14,5

100 s: (14,0...14,8)

Spread cm3 : 0.4

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 6,10 Del.quantity cm3/ : 1,9...2,5

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack cravel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 1200

Del.quantity : 143,0...145,0

1000 : (140,0...148,0) cm3 : 4,0 1000 : (-)

Spread

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10,10

Speed rpm : 1090...1110 2nd rack travel in: 5.80 Speed rpm : 1135...1165

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 400° Speed `

Rack travel in mm: 6,10

Testing:

rpm : 100 Speed Minimum rack trave: 19,00 rpm : 400

Rack travel in mm : 6,00...6,20

Rack travel in mm : 2.00 Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: 11,10 2nd speed rpm : 650

Rack travel in m: 11,65...11,76

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 800 Pressure hPa : 220 Rack travel mm

Measurement

1/min : 800 Speed

1st pressure hPa : 665

Rack travel in m: 11,00...11,10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 650

Del.quantity cm3/: 153,5...156,5

1000 s: (150,5...159,5)

Aneroid pressure h: rpm : 550 Speed

Del.quantity cm3/: 89.0...95.0 1000 s: (86.0...98.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10,10

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

B04

Del.quantity cm3/: 150,0...170,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150 Del.quantity cm3/ : 47,0...57,0 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Del.quantity cm3/: 19,0...25,0

1000 s: (-)

Start-of-delivery mark = 13.25° after start of delivery cyl. 1.

* Start of LDA (manifold-pressure compensator) movement

Note remarks

Test sheet : DEE 10,1 d5 Edition : 02.08.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 076 036

Injection pump

Pump designation : PES6P110A720RS296

Governor

Governor design.: RSV400...1050P7/436D

Customer-spec. information

: JOHN DEERE Customer

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6_00x1_50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,75...2,85 Prestroke mm

: (2,70...2,90)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1040

Rack travel in mm : 12,10

Del.quantity cm3/: 17,5...17,7

100 s: (17,3...17,9)

cm3 : 0,4Spread

100 s: (-)

rpm : 400 2nd speed Rack travel in mm: 6,30 Del.quantity cm3/: 1,9...2,5

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack cravel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1040 Speed

: 175,0...177,0 Del.quantity 1000 : (173,0...179,0) cm3 : 4,0 1000 : (-)

Spread

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11,10

Speed rpm : 1060...1070

2nd rack travel in: 4,40

rpm : 1085...1115 Speed

LOW IDLE 1

Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400

Rack travel in mm: 6.30

Testing: rpm : 100 Speed Minimum rack trave: 19,00 rpm : 400 Speed Rack travel in mm : 6,20...6,40 Rack travel in mm : 2,00 rpm : 400...470 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1040 Rack travel in m: 12,10 2nd speed rpm : 800 Rack travel in m: 12,40 3rd speed rpm : 650 Rack travel in m: 12,60 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 650 Speed Del.quantity cm3/: 179.5...182.5 1000 s: (178.0...184.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11,10 Speed rpm : 1060...1070 STARTING FUEL DELIVERY HIGH IDLE 1st version Speed rpm : 1100 Del.quantity cm3/: 17,0...27,0 1000 s: (-) LOW IDLE rpm : 400 Speed Del.quantity cm3/: 19,0...25,0 1000 s: (-) Remarks: Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

Note remarks

Test sheet : DEE 7,6 1 4 Edition : 02.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 037

Injection pump

Pump designation : PES6P110A720RS305

Governor

Governor design. : RSV400...1050P7/437D

Customer-spec. information

Customer : JOHN DEERE

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 1 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85 : (2,70...2,90)
Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0: 0-50-120-18

Time to cyl. no. : 1

BASIC SETTING

rpm : 1040 1st speed

Rack travel in mm : 10,80

Del.quantity cm3/: 14,3...14,5

100 s: (14,1...14,7)

Spread cm3 : 0.4

100 s: (-)

rpm : 400 2nd speed Rack travel in mm : 6,10

Del.quantity cm3/: 1,8...2,6

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800 Speed

Rack cravel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1040 Speed

Del. quantity

1000 : (141,0...147,0) cm3 : 4,0

Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9,80

Speed rpm : 1060...1070

2nd rack travel in: 4.10

Speed rpm : 1085....1115

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

rpm : 400

Rack travel in mm: 6.10

Testing: rpm : 100 Speed Minimum rack trave: 19,00 rpm : 400 Speed Rack travel in mm : 6,00...6,20 Rack travel in mm: 445 rpm : 2,00 Speed TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 10,80 rpm : 650 2nd speed Rack travel in m: 11,40 3rd speed rpm : 600 Rack travel in m: 11,60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 153,5...156,5 1000 s: (152,0...158,0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9,80 rpm : 1060...1070 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 150,0...180,0 1000 s: (-) HIGH IDLE 1st version Speed rpm : 1100 Del.quantity cm3/ : 17,0...27,0 1000 s: (-) LOW IDLE Speed rpm : 400

Del.quantity cm3/: 18,0...26,0 1000 s: (-)

Remarks: Start-of-delivery mark = 13.25° after start of delivery cyl. 1.

B08

Note remarks

Test_sheet : DEE 7,6 1 5 Edition : 02.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 976 040

Injection pump

Pump designation : PES6P110A720RS305

Governor

Governor design. : RSV400...1050P2/442D

Customer-spec. information

Customer : JOHN DEERE

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00x1,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,75...2,85 Prestroke mm

: (2,70...2,90) Rack travel in mm: 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 11,10

Del.quantity cm3/: 14,3...14,5

100 s: (14,1...14,7)

Spread cm3 : 0.4

100 s: (-)

rpm : 400 2nd speed Rack travel in mm: 6,10

Del.quantity cm3/: 1.8...2,6

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack cravel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 700

Del.quantity : 143,0...145,0

1000 : (141,0...147,0) cm3 : 4,0

Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10,10

Speed rpm : 1090...1110

2nd rack travel in: 5,90

Speed rpm : 1135...1165

5th rack travel in: 1300

Speed rpm : 0,30...1,70

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 6,10

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 400

Rack travel in mm : 6,00...6,20

Rack travel in mm : 2,00 Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 950 Rack travel in m: 11,15 2nd speed rpm : 650

Rack travel in m: 11,70...11,90

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 550 Speed hPa : 530 Pressure

Rack travel mm : 11.65...11.75

Measurement

Speed 1/min: 550

1st pressure hPa : 330 Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 650

Del.quantity cm3/: 153,5...156,5 1000 s: (152,0...158,0)

Aneroid pressure h: rpm : 550 Speed

Del.quantity cm3/: 88,0...104,0 1000 s: (86,0...106,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10,10

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150,0...170,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150 Del.quantity cm3/ : 47,0...57,0 1000 s: (-)

LOW IDLE

Speed rpm : 400

Del.quantity cm3/: 18,0...26,0

1000 s: (-)

Remarks:

Start-of-delivery mark = 13.25° after

start of delivery cyl. 1.

* Start of LDA (manifold-pressure compensator) movement

Note remarks

Test_sheet : DEE 10,1 d7 Edition : 02.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 041

Injection pump

Pump designation : PES6P110A720RS296

Governor

Governor design. : RSV400...1050P0/439D

Customer-spec. information

Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00x1,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,75...2,85 : (2,70...2,90) Prestroke mm

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm: 11,20

Del.quantity cm3/: 14,7...14,9

100 s: 14,6...15,0

Spread cm3 : 0,4

100 s: (-)

rpm : 400 2nd speed Rack travel in mm: 6,20

Del.quantity cm3/: 2,0...2,4

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Aneroid pressure h: 800

Del.quantity : 146,0...150,0 1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 35...43

Testing:

1st rack travel in: 10,20

Speed rpm : 1090...1110

2nd rack travel in: 6,10 Speed rpm : 1135...1165

5th rack travel in: 1300

Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm: 6,20

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm : 400

Rack travel in mm : 5,50...5,70

Rack travel in mm : 2,00 Speed rpm : 500...560

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 450 Rack travel in m: 11,70...12,50

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 550 Speed rpm: 550 Pressure hPa: 740

Rack travel mm : 11.70...12.50

Measurement

Speed 1/min : 550

1st pressure hPa : 50 Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 550 Speed

Del.quantity cm3/: 112,0...118,0

1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10,20

Speed rpm : 1100...1110

STARTING FUEL DELIVERY

HIGH IDLE

1st version

rpm : 1150

Del.quantity cm3/: 47,0...57,0 1000 s: (-)

B12

LOW IDLE

rpm : 400 Speed

Del.quantity cm3/: 20,0...24,0 1000 s: (-)

Remarks:

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

* Start of LDA (manifold-pressure compensator) movement

Note remarks

Test sheet : DEE 10,1 d6 Edition : 02.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 420 076 042

Injection pump

Pump designation : PES6P110A720RS290

Governor

Governor design. : RSV400...1050P7/438D

Customer-spec. information

Customer : JOHN DEERE

: 6619 T Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00x1,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm

: 2,75...2,85 : (2,70...2,90)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040

Rack travel in mm: 11,00

Del.quantity cm3/: 14,7...14.9

100 s: (14,5...15,1)

cm3 : 0.4Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 6,10 Del.quantity cm3/ : 1,9...2,5 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack cravel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1040 Speed

Del.quantity : 147,0...149,0 1000 : (145,0...151,0)

cm3 : 4,0 Spread

1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 10,00

Speed rpm : 1060...1080

2nd rack travel in: 4.10 Speed rpm: 1085...1115

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

rpm : 400

Rack travel in mm: 6.10

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 400

Rack travel in mm: 6,00...6,20
Rack travel in mm: 440
Speed rpm: 2,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 450

Rack travel in m: 11.70...12.30

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10,00

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190,0...210,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100 Del.quantity cm3/ : 17,0...27,0 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Del.quantity cm3/: 19,0...25,0 1000 s: (-)

Remarks:

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

Note remarks

Test sheet : VAL 7.2 a Edition : 19.05.88 Replaces : 9.3.87 Edition : 19.05.88
Replaces : 9.3.87
Test oil : ISO-4113

Combination no. : 0 402 076 056

Injection pump

Pump designation : PES6P110A320RS505 EP type number : 0 412 016 072

Governor

Governor design. : RSV325...1150P0A522

Governer no. : 0 421 833 242

Customer-spec, information Customer : VALMET

Engine : 612 DSJ

1st version kW : 165.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. DC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm : (2.95...3.15)

Rack travel in mm : 9.00...12.00

B15

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 700 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 13.8...14.1

100 s: (13.5...14.3)

cm3 : 0.4 Spread

100 s: (0.7)

rpm : 325.0 2nd speed

Rack travel in mm: 7.1...7.3 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del.quantity : 138.0...141.0

1000 : (135.5...143.5) cm3 : 4.00

Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.00

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1290...1310 4th rack travel in: 1460

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 325 Rack travel in mm: 6.7

Testing:

Speed rpm : 100 Minimum rack trave: 8.60 rpm : 325 Speed

Rack travel in mm : 6.60...6.80 Rack travel in mm : 2.00 Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 12.00...12.10

2nd speed rpm : 1150

Rack travel in m: 11.90...12.10

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.40...10.50

2nd pressure hPa : 400

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 102.0...105.0

1000 s: (99.5...107.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

B16

Speed : 1190...1200 mq3

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

LOW IDLE

Speed rpm: 325
Rack travel in mm: 7.10...7.30

Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3 : 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet Edition : IHC 13,4 g Edition Replaces : 02.08.89

: ISO-4113

Combination no. : 0 402 076 700

Injection pump

Pump designation : PES6P110A420LS3008

Governor

Governor design. : RSV350...1050P0/381D

Customer-spec. information Customer : IHC

: DTI-817 C Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 2.8

Test nozzle holder

assembly : 1 688 901 003

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 9 681 230 713

Outside diameter x Wall thickness

x Length mm : 6,35x2,21x999,36

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10 : (1,95...2,15)
Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240 Phasing Phasing : 0-60-120-18 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm: 13,30

Del.quantity cm3/: 20,3...20,5

100 s: (20,1...20,7)

Spread cm3 : 0.6

100 s: (-)

rpm : 400 2nd speed Rack travel in mm : 6,50 Del.quantity cm3/ : 4,3...5,5

100 s: (-) cm3 : 0,4 Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack cravel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 800

: 203,0...205,0 Del.quantity

1000 : (201,0...207,0) cm3 : 6,0

Spread 1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 39...47

Testing:

1st rack travel in: 12.30

Speed rpm : 1090...1210

2nd rack travel in: 3.85

Speed rpm : 1175...1205

4th rack travel in: 1240

Speed rpm : 1.30...2.00

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.00

Testing:

rpm : 100 Speed Minimum rack trave: 20,00 Speed rpm : 350

Rack travel in mm : 5.40...5.60

rpm : 400 Speed Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030 Rack travel in m: 13.30 2nd speed rpm : 700

Rack travel in m: 14.20...14.30

3rd speed rpm : 350

Rack travel in m: 14.20...14.30

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 690

Rack travel mm : 14.20...14.30

Measurement

Speed 1/min: 500

1st pressure hPa : 100 Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 700

Del.quantity cm3/: 238,0...245.0 1000 s: (236,0...247,0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 151.0...159.0 1000 s: (149,0...161,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12,30

Speed rpm : 1085...1095

STARTING FUEL DELIVERY

B18

Speed rpm : 100 Del.quantity cm3/ : 190,0...230,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1140 Del.quantity cm3/ : 30,0...40,0

1000 s: (-)

LOW IDLE

Speed rpm : 350

Del.quantity cm3/: 21,0...31,0

1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure

compensator) movement

Note remarks

Test sheet : IHC 13,4 h Edition : 23.08.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 076 704

Injection pump

Pump designation: PES6P110A420LS3008

Governor

Governor design. : RSV350...1050P0/386D

Customer-spec. information

Customer

Engine : DTI-817C

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 2.8

Opening

pressure, bar : 207...210

Test lines : 9 681 230 713

Outside diameter x Wall thickness

x Length mm : 6,00x2,00x1016

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10

: (1,95...2,15)

Rack travel in mm : 9,00...12,00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300

Phasing Tolerance + - 0: 0,50 (0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9,00

Del.quantity cm3/ : 10,4...11,8

100 s: (-)

2nd speed rpm : 1000 Rack travel in mm : 12,00

Del.quantity cm3/: 17,6...18,6

100 s: (-) rpm : 600

3rd speed Rack travel in mm : 6,00 Del.quantity cm3/: 3,4...4,4 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 800

Del.quantity : 196,0...202,0

RATED SPEED

1st version Control lever

position degrees: 39...47

Testing:

1st rack travel in: 12,30

Speed rpm : 1090...1110

2nd rack travel in: 8,00

Speed rpm : 1135...1165 3rd rack travel in: 1,30...6,40 Speed rpm : 1190

4th rack travel in: 1240

Speed rpm : 1,30...2,00

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5,50

Testing:

Speed rpm : 100 Minimum rack trave: 20,00 Speed rpm: 350

Rack travel in mm : 5,40...5,60

Rack travel in mm : 1,65 Speed rpm : 390..410

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030 Rack travel in m: 9,00 2nd speed rpm : 750

Rack travel in m: 9.70...9,90 3rd speed rpm : 450

Rack travel in m: 9,70...9,90

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 132 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 488 Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 750 Speed

Del.quantity cm3/: 230,0...240,0 1000 s: (-)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 158,5...159,5

1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11,00

rpm : 1085...1095 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 225,0...295,0

1000 s: (-)

HIGH IDLE

1st version

B20

rpm : 1145 Rack travel in mm : 4,70...5,70

LOW IDLE

Speed rpm : 350

Del.quantity cm3/: 24,0...34,0

1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure

compensator) movement

** Ende der LDA-Bewegung

Note remarks

Test sheet Edition : IHC 13,4 d1 : 02.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 711

Injection pump

Pump designation : PES6P110A420LS3043

Governor

Governor design. : RSV350...1050P0/430D

Customer-spec. information

Customer

Engine

: DTI-817 C

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 2.8

Test nozzle holder

assembly : 1 688 901 003

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 9 681 230 713

Outside diameter

x Wall thickness

x Length mm : 6,35x2,12x999,36

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

: 2,00...2,10 Prestroke mm

: (1,95...2,15)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240
Tolerance + - 0 : 0.50 (0.70)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm: 13,30

Del.quantity cm3/: 20,3...20,5

100 s: (20,1...20,7)

Spread cm3 : 0.6

100 s: (-)

rpm : 350 2nd speed Rack travel in mm: 5,60

Del.quantity cm3/: 4,2...6,2 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del.quantity : 203.0...205.0 1000 : (201.0...207.0)

cm3 : 6,0 1000 : (-) Spread

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

ist rack travel in: 12.30

Speed rpm : 1090...1110

2nd rack travel in: 3.85

Speed rpm : 1175...1205

4th rack travel in: 1240

rpm : 1.30...2.00 Speed

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5.00

Testing:

Speed rpm : 100 Minimum rack trave: 20.00 Speed rpm: 350

Rack travel in mm : 5.30...5.70

Speed : 400 rpm Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: 13.30

2nd speed rpm : 350 Rack travel in m: 14,20...14.30

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 630

Rack travel mm : 14.20...14.30

Measurement

Speed 1/min: 500

1st pressure hPa : 90 Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 700 Speed

Del.quantity cm3/: 238,0...245,0 1000 s: (236,0...247,0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 151,0...159,0 1000 s: (149,0...161,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12,30

rpm : 1085...1095 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 265,0...305,0

1000 s: (-)

HIGH IDLE

1st version

rpm : 1140 Speed

Del.quantity cm3/: 30,0...40,0

1000 s: (-)

LOW IDLE

rpm : 350 Speed

Del.quantity cm3/: 42,0...62,0 1000 s: (-)

* Start of LDA (manifold-pressure compensator) movement

B22

Note remarks

Test sheet : IHC 13,4 d2 Edition : 02.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 713

Injection pump

Pump designation : PES6P110A42LOLS3043

Governor

Governor design. : RSV350...1050P0/432D

Customer-spec. information

Customer

: DTI-817 C Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 2.8

Test nozzle holder

assembly : 1 688 901 003

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 9 681 230 713

Outside diameter x Wall thickness

: 6,35x2.21x999,36 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10

: (1,95...2,15)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing Tolerance + - 0

: 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm: 13,00

Del.quantity cm3/: 19,3...19,5

100 s: (19,1...19,7)

cm3 : 0.6Spread

100 s: (-)

2nd speed rpm : 350 Rack travel in mm : 5,60 Del.quantity cm3/ : 2,1...3,1

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Aneroid pressure h: 800 Del.quantity

: 193,0...195,0 1000 : (191,0...197,0)

cm3 : 6.0 1000 : (-) Spread

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 12.00 Speed rpm: 1090...1210 2nd rack travel in: 3.85

Speed rpm : 1175...1205

4th rack travel in: 1240

rpm : 1.30...2.00 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 350' Speed

Rack travel in mm: 5.50

Testing:

rpm : 100 Speed Minimum rack trave: 20.00 Speed rpm: 350
Rack travel in mm: 5.30...5.70
Speed rpm: 400

Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: 13,00 2nd speed rpm : 750

Rack travel in m: 13,70...13,90

3rd speed rpm : 450

Rack travel in m: 13,70...13,90

Aneroid/Altitude Compensator Test

1st version Setting

rom : 500 Speed hPa : 550 Pressure

Rack travel mm : 13.70...13.90

Measurement

Speed 1/min: 500

1st pressure hPa : 90 Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 Speed rpm : 750

Del.quantity cm3/: 227.0...233.0 1000 s: (225.0...235.0)

Aneroid pressure h: -Speed

rpm : 500 Del.quantity cm3/: 158,0...166,0

1000 s: (156,0...168,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12,00

Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 260,0...310,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1140 Del.quantity cm3/ : 30,0...40,0

1000 s: (-)

LOW IDLE

rpm : 350 Speed

Del.quantity cm3/: 21,0...31,0 1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure

compensator) movement

Note remarks

Test sheet : MB 11,4 o 3 Edition : 11.03.88

Replaces Test oil

: ISO-4113

Combination no. : 0 402 076 717

Injection pump

Pump designation : PES6P120A820LS3095-1

EP type number : 0 412 026 715

Governor

Governor design.: RSV350...750P0A487-4

Governer no. : 0 421 833 265

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M407A

1st version kW : 169.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 730

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

cm3 : 0.5 Spread ______

100 s: (0.8)

rpm : 350.0 2nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 3.0...4.0

100 s: (-)

cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 730 Speed

: 196.0...198.0 1000 : (193.0...201.0) Del.quantity

cm3 : 5.00 Spread

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 29...37

Testing:

1st rack travel in: 11.40
Speed rpm: 750...755
2nd rack travel in: 4.00
Speed rpm: 776...789
4th rack travel in: 900

Speed rpm : 0.30...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350
Rack travel in mm : 5.8
Speed rpm : 350

Rack travel in mm : 5.70...5.90

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40 Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...190.0 1000 s: (166.0...194.0)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MB 11,7 e Edition : 16.05.88 Replaces : 12.9.86 Test oil : ISO-4113

Combination no. : 0 402 076 719

Injection pump

Pump designation : PES6P110A820LS3131-1

EP type number : 0 412 016 717

Governor

Governor design. : RSV350...750POA517

Governer no. : 0 421 833 215

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M427

1st version kW : 142.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40 : (4.25...4.45)

Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 13.6...13.8

100 s: (13.3...14.1)

Spread cm3 : 0.4

100 s: (0.8)

rpm : 350.0 2nd speed Rack cravel in mm : 6.9...7.1 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 700 Speed

: 136.0...138.0 Del.quantity 1000 : (133.0...141.0)

cm3 : 4.00 Spread

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Testing:

1st rack travel in: 11.20

Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm: 775...788 4th rack travel in: 900

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point W/out bumper spring

Speed rpm : 350 Rack travel in mm: 7.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm: 350

Rack travel in mm: 6.90...7.10
Rack travel in mm: 2.00
Speed rpm: 360...400

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 740...750

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.55...3.65 : (3.50...3.70)
Rack travel in mm : 10.50...10.50
Firing order : 1-5- 3- 6- 2- 4 Note remarks Test sheet : DEE 7,6 y 1 Edition : 15.06.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 076 722 Tolerance + - D : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS3203 EP type number : 0 412 026 728 BASIC SETTING Governor Governor design. : RSV400...1100P2A534 rpm : 1100 1st speed Governer no. : 0 421 833 275 Rack travel in mm : 11.60...11.70 Customer-spec. information Customer : JOHN DEERE Del.quantity cm3/: 14.8...15.0 : 6466 HF-050 100 s: (14.5...15.2) Engine 1st version kW : 194.0 Spread cm3 : 0.4 : 2200 2nd version kW 100 s: (0.7) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Rack cravel in mm: 4.8...5.0 Test oil inlet temp. OC : 38...42 Del.quantity cm3/: 1.8...2.3 100 s: (1.6...2.6) cm3 : 0.4 100 s: (0.7) Overflow valve Spread : 1 457 413 010 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 101 assembly Speed rpm : 800 Rack travel in mm : 0.30...0.70 Opening. pressure, bar : 207...210 Governor spring pre-tension Click setting x :? Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed Test lines : 1 680 750 008 rpm : 1100 Aneroid pressure h: 1200 Del.quantity : 148.0...150.0 1000 : (145.5...152.5) Spread cm3 : 4.00 1000 : (7.50) Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values ____ 1st version Control lever BEGINNING OF DELIVERY position degrees: 45...53 Test pressure, bar: 27...29 Testing:

1st rack travel in: 10.70

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1205...1215

3rd rack travel in: 4.00 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 400

Rack travel in mm : 4.80...5.00 Rack travel in mm : 2.00

rpm : 535...595 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.60...11.70

2nd speed rpm : 750

Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version Setting

Speed

rpm : 500 Pressure hPa : -

Rack travel mm : 9.70...9.90

Measurement

Speed 1/min: 500

1st pressure hPa : 605 Rack travel in m: 10.50...10.60

2nd pressure hPa : 820

Rack travel in m: 11.70...12.10

3rd pressure hPa : 1200

Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm_ : 750 Speed

Del.quantity cm3/: 180.0...185.0

1000 s: (177.5...187.5)

Aneroid pressure h: -

rpm : 500 Speed

C02

Del.quantity cm3/:-

1000 s: (118.5...128.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

rpm : 1145...1155 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 20.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 18.5...23.5 1000 s: (16.0...26.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32035

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

Note remarks

Test sheet : DEE 7,6 y Edition : 15.06.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 723

Injection pump

Pump designation : PES6P120A720RS3203

EP type number : 0 412 026 728

Governor

Governor design. : RSV400...1100P2A534-

Governer no. : 0 421 833 276

Customer-spec. information

Customer : JOHN DEERE

: 6466 AF-050 Engine

1st version kW : 180.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

CO3

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.50...10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 14.2...14.4

100 s: (13.9...14.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 400.0 2nd speed Rack travel in mm: 4.7...4.9

Del.quantity cm3/: 1.7...2.2 100 s: (1.5...2.8) cm3 : 0.4 100 s: (0.7)

Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Del.quantity : 142.0...144.0

1000 : (139.5...146.5) cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.20

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1210
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.3

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 400

Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00

rpm : 535...595 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.20...11.30 2nd speed rpm : 700

Rack travel in m: 12.40...12.60

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 900 Rack travel mm : 12.40...12.60

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.20

2nd pressure hPa : 540

Rack travel in m: 10.60...10.70 3rd pressure hPa : 740

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed

Del.quantity cm3/: 181.0...185.0 1000 s: (178.0...188.0)

Aneroid pressure h: -

Speed rpm : 500

CO4

Del.quantity cm3/: -

1000 s: (127.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1145...1155

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...28.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32033

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.30...4.40 Prestroke mm : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 6-2-4-1-5-3 Test sheet : MB 11,7 d 2 : 07.03.88 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 402 076 725 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3131-1 EP type number : 0 412 016 717 BASIC SETTING Governor Governor design.: RSV350..1050P0A487-5 1st speed rpm : 1030 Governer no. : 0 421 833 285 Rack travel in mm : 12.50...112.00 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 15.0...15.2 100 s: (14.7...15.4) Engine : 0M447 1st version kW : 177.0 Spread cm3 : 0.4: 2100 ______ Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack cravel in mm : 7.0...7.3 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Overflow valve cm3 : 0.4 Spread 100 s: (0.7) : 1 417 413 025 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Over flow Degree: -3 rpm : 800 Speed quantity min. 1/h: 100...120 Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x : ? Opening pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 015 Speed rpm : 1030 Del.quantity : 150.0...152.0 1000 : (147.5...154.5) Outside diameter cm3 : 4.00 1000 : (8.00) x Wall thickness Spread : 6.00x1.50x600 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: 43...51 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing:

1st rack travel in: 11.50

rpm : 1075...1085 Speed 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1350 rpm : 0.00...1.40 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.1 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm: 350 Rack travel in mm: 7.00...7.30 Rack travel in mm : 2.00 rpm : 400...440 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 133.0...137.0 1000 s: (130.0...140.0) cm3 : 6.00 Spread 1000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 Speed rpm : 1075...1085 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0) LOW IDLE Speed rpm : 350 Rack travel in mm : 7.00...7.30 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0) Spread cm3 : 4.50

1000 s: (7.00)

Remarks:

CO6

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : DEE 10,1 f Phasing : 0-60-120-180-240-300 Edition : 15.06.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 402 076 726 BASIC SETTING Injection pump Pump designation : PES6P110A720RS3209 1st speed rpm : 1050 EP type number : 0 412 016 722 Governor Rack travel in mm : 11.10...11.20 Governor design. : RSV400...1050P0A537 : 0 421 833 287 Governer no. Del.quantity cm3/: 16.5...16.7 Customer-spec. information 100 s: (16.2...16.9) Customer : JOHN DEERE Spread cm3 : 0.4Engine : 6619 A 100 s: (0.7) 1st version kW : 168.0 rpm : 400.0 Rated speed : 2100 2nd speed Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.6...2.1 TEST BENCH REQUIREMENTS 100 s: (1.3...2.3) cm3 : 0.4 Test oil Spread inlet temp. °C : 38...42 100 s: (0.7) Overflow valve GUIDE SLEEVE POSITION : 1 457 413 010 Control-lever position Degree: -3 Inlet press., bar: 1.50 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x :? Opening pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 015 Speed rpm : 1050 Del.quantity : 165.0...167.0 1000 : (162.5...169.5) Outside diameter x Wall thickness cm3 : 4.00 Spread : 6.00x3.00x600 1000 : (7.50) x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ____ Control lever position degrees: 40...48

Testing: 1st rack travel in: 10.10 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1145...1155 Speed

CO7

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 27...29

Rack travel in mm : 10.50...10.50

: 3.45...3.55

: (3.40...3.60)

3rd rack travel in: 4.00 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 20...28 Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm: 4.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm: 400 Rack travel in mm: 5.00...5.20

Rack travel in mm: 2.00

Speed rpm : 505...565

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.10...11.20 2nd speed rpm : 700

Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del.quantity cm3/: 177.5...182.5 1000 s: (175.0...185.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 175.0...195.0 1000 s: (170.0...200.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm: 5.00...5.20 Del.quantity cm3/: 16.0...21.0 1900 s: (13.5...23.5)

C08

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE33898

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark at 140 angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

Note remarks

Test sheet : IHC 9,4 a 8 Edition : 02.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 088 024

Injection pump

Pump designation : PES8P100A921/5RS286

Governor

Governor design. : RSV350...1100P0/418D

Customer-spec. information Customer

Engine : DV 800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 2.8

Test nozzle holder

assembly : 1 688 901 004

Opening

pressure, bar : 207...210

Orifice plate

: 0,6 diameter mm

Test lines : 9 681 230 713

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2,70...2,80 Prestroke mm

: (2,65...2,85) Rack travel in mm : 9,00...12,00

Firing order : 1-8-4-2-7-3-6-5

: 0-45-90-135-180-225-Phasing

Phasing : 270-315 : 0,50 (0,75) Tolerance + - 0

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm: 10,30

Del.quantity cm3/: 11,8...12,1

100 s: (11,6...12,3)

Spread cm3 : 0,4

100 s: (-)

2nd speed rpm : 350 Rack travel in mm: 5,00

Del.quantity cm3/: 1,6...2,3

100 s: (-)

cm3 : 0,6Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

. 118,0...121,0 Del.quantity

1000 : (116,0...123,0)

cm3 : 4.0Spread

1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.30

Speed rpm : 1140...1150

2nd rack travel in: 3.10

Speed rpm : 1235...1265

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

rpm : 350° Rack travel in mm: 6.00

Testing:

Speed rpm : 150 Minimum rack trave: 19.00

CO9

Speed rpm : 350 Rack travel in mm : 5.90...6.10

Speed rpm: 430 Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080 Rack travel in m: 10,30 2nd speed rpm : 860

Rack travel in m: 11.00...11.20 3rd speed rpm : 700

Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 850 Speed

Del.quantity cm3/: 126.0...132.0 1000 s: (124,0...134,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9,30

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

HIGH IDLE

1st version

rpm : 1200 Speed

Del.quantity cm3/: 13,0...33,0 1000 s: (-)

LOW IDLE

Speed rpm: 350 Del.quantity cm3/: 16,0...23,0

1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00 Note remarks : 1- 5- 4- 8- 6- 3-7- 2 Firing order : STE 12.0 c : 16.05.88 Test sheet Edition : 13.5.87 Replaces Test oil : ISO-4113 : 0-45-90-135-180-225-Phasing Combination no. : 0 402 638 801 270-315 Tolerance + - 0: 0.50 (0.75) Injection pump Pump designation : PE8P12OA12OLS7127 Time to cyl. no. : 1 EP type number : 0 412 628 817 Governor BASIC SETTING Governor design. : RQ300/1100PA134-2 Governer no. : 0 421 801 364 1st speed rpm : 1100 Rack travel in mm : 11.50...11.60 Customer-spec. information Customer : STEYR Del.quantity cm3/: 17.6...17.8 : WD 815.66 Engine 100 s: (17.3...18.1) 1st version kW : 277.0 Rated speed : 2200 cm3 : 0.5 Spread TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil 2nd speed rpm : 300.0 inlet temp. °C : 38...42 Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.4...2.0 Overflow valve 100 s: (1.1...2.3) : 1 417 413 025 Spread cm3 : 0.8 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position assembly : 1 688 901 019 Degree: -1 rpm : 600 Rack travel in mm : 15.60...16.40 Opening. : 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,8 1st version Speed rpm : 1100 Aneroid pressure h: 1200 Del.quantity : 176.0...178.0 1000 : (173.0...181.0) Spread cm3 : 5.00 Test lines : 1 680 750 067 Outside diameter x Wall thickness 1000 : (9.00) x Length mm : 6.00x1.50x1000

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 16.0

Testing:

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

1st rack travel in: 10.50

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

Speed rpm : 1210...1240

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300° Rack travel in mm: 6.4

Testing:

rpm : 100 Speed Minimum rack trave: 7.80 rpm : 300 Speed

Rack travel in mm : 6.30...6.50

Rack travel in mm: 2.00

rpm : 400...440 Speed

TORQUE CONTROL

Dimension a mm : 0.25

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.50...11.60

2nd speed rpm : 700

Rack travel in m: 12.00...12.10

3rd speed rpm : 1000

Rack travel in m: 11.60...11.80

4th speed rpm : 850

Rack travel in m: 11.80...12.10

Aneroid/Altitude Compensator Test

1st version

Setting

rom : 500 Speed Pressure hPa : 1200

Rack travel mm : 12.00...12.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.60 2nd pressure hPa : 760

Rack travel in m: 11.50...11.60

3rd pressure hPa : 470

Rack travel in m: 10.00...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm: 700 Del.quantity cm3/: 183.0...191.0 1000 s: (181.0...193.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 122.0...126.0

1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 230.0...260.0 Rack travel in mm: 20.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 14.0...20.0

1000 s: (11.0...23.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

Note remarks

Test sheet : SCA 11.0 v2 : 07.09.89 Edition : 24.7.87 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 804

Injection pump

Pump designation : PE6P12OA72ORS7004 EP type number : 0 412 626 801

Governor

Governor design. : RQ900PA528 Governer no. : 0 421 801 127

Customer-spec. information

Customer : SAAB - SCANIA

Engine : DS11 43,44,45

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

C13

firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 20.7...20.9

100 s: (20.4...21.2)

Spread cm3 : 0.6

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack cravel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Del.quantity : 207.0...209.0

1000 : (204.0...212.0)

cm3 : 6.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 22...30

Testing:

1st rack travel in: 11.80 rpm : 900...905 Speed

2nd rack travel in: 4.00 Speed rpm : 941...955

4th rack travel in: 1000

Speed rpm : 0.00...1.00

LOW IDLE 1

Testing:

rpm : 100 Speed

Rack travel in mm: 2.00

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 240.0...290.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version

Rack travel in mm : 4.90...5.10

Spread cm3 : 4.00

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on Oct. 17, 1988

Engine model DS 11 - 17° before top dead center.

Engine model DSI 11 - 160 before top dead center.

Firing sequence of engine: 1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : SCA 11,0 j1 Test sheet : 07.03.88 Edition Replaces : 13.5.87 Test oil : ISO-4113 Combination no. : 0 402 646 821 Injection pump Pump designation : PE6P12OA72ORS7104 EP type number : 0 412 626 807 Governor Governor design. : RQV200...1000PA725 Governer no. : 0 421 813 457 Customer-spec. information Customer : SAAB-SCANIA Engine : DSC 11 01 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 925 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 4.50...4.60

: (4.45...4.65) Rack travel in mm : 6.00...8.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.00...14.70 & maximum rack tra: 21.00

Difference O CS : 1.85...2.55

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 21.0...21.2

100 s: (20.7...21.5)

Spread cm3 : 0.7

100 s: (1.0)

rpm : 225.0 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.4...1.8 100 s: (-)

cm3 : 0.3 Spread 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 225 1st speed : 1.20...1.60 travel mm

2nd speed rpm : 350

travel mm : 2.40...3.00 rpm : 650 3rd speed

: 4.50...5.10 travel mm

4th speed rpm : 1045

: 8.40...8.60 travel mm

5th speed rpm : 1165

: 10.00...10.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

C15

1st version rpm : 700 Speed Aneroid pressure h: 900 Del.quantity : 210.0...212.0 1000 : (207.0...215.0) Spread cm3 : 7.00 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 13.70 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 5...13 Testing: Speed rpm : 100 Minimum rack trave: 5.90 Speed rpm : 225 Rack travel in mm : 4.40...4.60 Rack travel in mm: 2.00 Speed rpm : 310...370 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 900 Speed Pressure Rack travel mm : 14.70...14.80 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 11.80...11.90 2nd pressure hPa : 410 Rack travel in m: 14.00...14.10 3rd pressure hPa : 290 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS

1st version

Speed

C16

Aneroid pressure h: 900

rpm : 1000

Speed rpm : 500 Del.quantity cm3/ : 164.0...168.0 1000 s: (162.0...170.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 1040...1050 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 240.0...290.0 Rack travel in mm: 20.00...21.00 LOW IDLE Speed rpm : 225
Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 14.0...18.0 1000 s: (-) cm3 : 3.00Spread 1000 s: (6.00) Remarks: Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm. ADDITIONAL INFORMATION Check and set without ROBO diaphragam For comb. with letter index see VDT-I-400/116. For sealing see VDT-I-400/117. Scania test specifications taken over on May 17, 1984 Start of delivery - engine: 220 before TDC at control-rod travel = 6.0...8.0 mm

Del.quantity cm3/: 201.0...209.0 1000 s: (199.0...211.0)

Aneroid pressure h: -

Firing sequence of engine: 1-5-3-6-2-4. C17

Note remarks

Test sheet : MB 11,0 t Edition : 13.06.88 Replaces : 9.10.87

Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump

Pump designation : PE6P120A320LS7808

EP type number : 0 412 626 816

Governor

Governor design. : RQ300/1050PA762-4

Governer no. : 0 421 801 390

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M441 LA

1st version kW : 240.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.7...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900

Del.quantity : 214.0...216.0 1000 : (211.0...219.0)

: 5.00 cm3

1000 : (9.00)

RATED SPEED

Spread

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0 Testing:

1st rack travel in: 13.70

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300' Rack travel in mm : 5.8

Testing:

Speed rpm : 200

Minimum rack trave: 7.70 : 300 Speed rpm

Rack travel in mm : 5.70...6.00

Rack travel in mm: 2.00

: 370...410 Speed rpm

TORQUE CONTROL

Dimension a mm : 0.30

2nd speed rpm : 1050

Rack travel in m: 14.70...14.90

3rd speed rpm : 800

Rack travel in m: 15.10...15.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rpm

Pressure hPa : 900

: 13.90...14.10 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 300

Rack travel in m: 10.70...10.90

2nd pressure hPa : 550

Rack travel in m: 12.70...12.90

3rd pressure hPa : 1050

Rack travel in m: 14.00...14.10

4th pressure hPa : 1150

Rack travel in m: 14.40...14.60

5th pressure hPa : -

Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1350

rpm : 1050 Speed

Del.quantity cm3/: 236.0...239.0

1000 s: (233.0...242.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1350 : 800 Speed rpm

Del.quantity cm3/: 243.0...247.0

1000 s: (240.0...250.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 145.0...147.0

1000 s: (142.0...150.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed : 100 Lbw

Del.quantity cm3/: 205.0...225.0

1000 s: (201.0...229.0)

Remarks:

Note remarks

Test sheet : MB 11,0 t 2 : 25.03.88 Edition : 27.3.87 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump

Pump designation : PE6P12OA32OLS7808 : 0 412 626 816

EP type number

Governor

Governor design. : RQV300...1050PA797-2

Governer no. : 0 421 813 614

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M441 LA

1st version kW : 240.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. DC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.7...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.40 travel mm

rpm : 600 2nd speed

: 4.90...5.10 travel mm

rpm : 1075 3rd speed

: 7.40...7.60 travel mm

rpm : 1100 4th speed

: 8.00...8.40 travet mm

rpm : 1150 5th speed

: 9.00...9.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 900 Del.quantity : 217.0...216.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 13.80 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 15...23 Testing: Speed rpm Minimum rack trave: 7.70 Speed rpm : 300 Rack travel in mm : 5.50...5.80 CONSTANT REGULATION Speed rpm : 300...450 TORQUE CONTROL : 0.30 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.60...14.80 3rd speed rpm : 800 Rack travel in m: 15.90...15.10 : 700 4th speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man Pressure hPa : 900 : 13.90...14.10 Rack travel mm Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.70...12.90

3rd pressure hPa : 1050 Rack travel in m: 14.00...14.10 4th pressure hPa : 1150 Rack travel in m: 14.40...14.60 5th pressure hPa : -Rack travel in m: 9.00...9.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1350 rpm : 1050 Speed Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1350 Speed rpm : 800 Del.quantity cm3/: 242.0...246.0 1000 s: (239.0...249.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.80 rpm : 1095...1110 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (186.0...214.0)

Remarks:

•

BOSCH INJ. PUMP TEST SPECIFICATIONS firing order Note remarks Test sheet : UNI 13,8 e : 26.02.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 646 859 Injection pump Pump designation : PE6P130A720RS7153 EP type number : 0 412 636 809 Governor Governor design. : RQV300...950PA883 Governer no. : 0 421 813 690 Customer-spec. information Customer : IVECO-UNIC : 8210.42.300 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness : 8.00x3.00x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 5.00...5.10

Rack travel in mm : 9.00...12.00

: (4.95...5.15)

: 0-60-120-180-240-300 Phasing Tolerance + - D : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 950 1st speed Rack travel in mm : 12.80...12.90 Del.quantity cm3/: 29.7...30.0 100 s: (29.3...30.3) Spread cm3 : 0.6 100 s: (1.0) rpm : 300.0 2nd speed Rack travel in mm : 2.9...3.1 Del.quantity cm3/: 1.9...2.5 100 s: (1.5...2.9) cm3 : 1.0 Spread 100 s: (1.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.10...1.50 travel mm rpm : 450 2nd speed travel mm : 2.80...3.40 rpm : 700 3rd speed travel mm : 5.10...5.50 rpm : 950 4th speed : 7.10...7.30 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1000 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 950 Speed Aneroid pressure h: 900 297.0, .300.0 1000 : (293.5...303.5) Del.quantity cm3 : 6.00 Spread 1000 : (10.00)

: 1-5-3-6-2-4

C22

Prestroke mm

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 11.80

Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1200 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 3...11

rpm : 300

Rack travel in mm : 2.90...3.10

CONSTANT REGULATION

Speed rpm : 310...430

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 900

Rack travel mm : 12.80...12.90

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 8.30...8.50

2nd pressure hPa : 500 Rack travel in m: 11.80...11.90

3rd pressure hPa : 380

Rack travel in m: 9.20...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 157.0...160.0 1000 s: (153.5...163.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 990...1000 Speed

C23

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 300 Rack travel in mm : 2.90...3.10

Del.quantity cm3/: 19.0...25.0 1000 s: (15.0...29.0)

cm3 : 10.00 Spread

1000 s: (14.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

: 3.60...3.70 : (3.55...3.75) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : VOL 16,0 c Edition : 15.08.89 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Combination no. : 0 402 646 883 Tolerance + - 0 : 0.30 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P130A720RS7122-2 EP type number : 0 412 636 813 BASIC SETTING Governor Governor design. : RQV225...930PA922 rpm : 700 1st speed Governer no. : 0 421 813 763 Rack travel in mm : 13.30...13.40 Customer-spec. information Customer : VOLVO-TRUCK Del.quantity cm3/: 28.8...29.1 : TD162 FS_FL_FJ 100 s: (28.5...29.5) Engine 1st version kW : 357.0 Spread cm3 : 0.6 Rated speed : 1860 100 s: (1.0) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack cravel in mm: 5.0...5.2 Test oil inlet temp. OC : 38...42 Del.quantity cm3/: 2.5...3.0 100 s: (2.3...3.3) Overflow valve cm3 : 0.5 Spread : 1 417 413 025 100 s: (0.8) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 250 1st speed travel mm : 1.00...1.40 : 207...210 pressure, bar rpm : 350 2nd speed : 2.10...2.70 travel mm Orifice plate 3rd speed rpm : 700 diameter mm : 0,8 travel mm : 5.60...6.20 : 975 4th speed rpm : 8.20...8.40 travel mm Test lines : 1 680 750 067 5th speed rpm : 1090 travel mm : 9.50...9.90 Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X1.50X1000 x Length mm Control-lever position Degree: -1 rpm : 1100 (A) Injection pump setting values Speed

Rack travel in mm : 7.70...10.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Aneroid pressure h: 700

Opening

Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 288.5...291.5 : (285.0...295.0) Del.quantity

1000

Spread cm3 : 6.00

: (10.00) 1000

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 12.30 rpm : 970...980 Speed

2nd rack travel in: 4.00

rpm : 1075...1105 Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 6.50 : 250 rpm

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 225...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

pm : 500 hPa : 700 Speed rpm Pressure

Rack travel mm : 13.30...13.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 80

Rack travel in m: 10.00...10.10

3rd pressure hPa : 610

Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -: 700 Speed rpm

Del.quantity cm3/: 182.0...185.0 1000 s: (178.5...188.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30 Speed : 970...980 rom

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 125.0...145.0 1000 s: (121.0...149.0)

Rack travel in mm : 9.70...9.90

LOW IDLE

rpm : 250 Speed

Rack travel in mm: 5.00...5.20
Del.quantity cm3/: 25.5...30.5
1000 s: (23.0...33.0)
Spread cm3: 5.00
1000 s: (8.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm

.

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 2- 7- 3- 4- 5-Note remarks Test sheet : SCA 14,2 a1 Edition : 26.02.88 Phasing : 0-45-90-135-180-225-Replaces : 6.10.86 270-315 Tolerance + - 0 Test oil : 0.50 (0.75) : ISO-4113 Combination no. : 0 402 648 802 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE8P120A920/4LS7002S EP type number : 0 412 628 800 rpm : 700 1st speed Governor Governor design. : RQV200...1050PA547 Governer no. : 0 421 813 293 Rack travel in mm : 13.20...13.30 Governer no. Del.quantity cm3/: 18.7...18.9 Customer-spec. information Customer : SAAB-SCANIA 100 s: (18.4...19.2) : DS14 07 Engine Spread cm3 : 0.6 TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil rpm : 225.0 2nd speed inlet temp. °C : 38...42 Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.0...1.4 Overflow valve 100 s: (-) : 1 417 413 025 cm3 : 0.3Spread 100 s: (0.6) Inlet press., bar: 1.50 (B) Seiting of injection pump Test nozzle holder with governor : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL Opening 1st speed rpm : 225 pressure, bar : 207...210 : 1.20...1.40 travel mm 2nd speed rpm : 280 Orifice plate travel mm : 1.80...2.10 diameter mm : 0,8 3rd speed rpm : 350 travel mm : 2.40...2.80 4th speed rpm : 1090 Test lines : 1 680 750 015 travel mm : 8.40...8.60 rpm : 1200 5th speed Outside diameter : 9.80...10.10 travel mm x Wall thickness : 6.00x1.50x600 GUIDE SLEEVE POSITION x Length mm Control-lever position (A) Injection pump setting values Degree: -1 Insp. values in parentheses rpm : 1100 Speed Set equal delivery quant. Rack travel in mm : 15.20...17.80 per values BEGINNING OF DELIVERY

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 700 Aneroid pressure h: 900

Del.quantity : 187.0...189.0 1000 : (184.0...192.0)

C26

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 5.00...5.10

: (4.95...5.15)

cm3 : 6.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 12.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 6.40 Speed rpm : 225

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00 Speed rpm : 340...400

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 900

Rack travel mm : 13.20...13.30

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 11.30...11.40

2nd pressure hPa : 350

Rack travel in m: 12.80...12.90

3rd pressure hPa : 230

Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 1000 Speed

Del.quantity cm3/: 184.0...192.0

1000 s: (182.0...194.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 137.0...141.0 1000 s: (135.0...143.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...290.0 Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 225

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 10.0...14.0

Spread cm3 : 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery valve holders

to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over

on Aug. 18, 1983

Engine start of delivery: 180 BTDC

Engine firing sequence: 1-5-4-2-6-3-7-8

Note remarks

Test sheet : MB 14,7 a 1 : 22.04.88 Edition Replaces : 18.9.87 Test oil : ISO-4113

Combination no. : 9 402 648 812

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQ300/1050PA717 Governer no. : 0 421 801 258

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 LA Engine

1st version kW : 320.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. DC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.0...22.2

100 s: (21.7...22.5)

cm3 : 0.5 Spread

100 st (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.1...6.7 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 680

Del.quantity : 220.0...225.0)
1000 : (217.0...225.0)
1000 : (2000...225.0)

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 Testing: 1st rack travel in: 14.40 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.4 Testing: Speed rpm : 200 Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.10...6.70 Rack travel in mm: 2.00 rpm : 380...420 Speed TORQUE CONTROL Dimension a mm : 0.35 2nd speed rpm : 1050 Rack travel in m: 15.20...15.40 3rd speed rpm : 850 Rack travel in m: 15.80...16.10 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 hPa : 680 Pressure Rack travel mm : 14.70...14.90 Measurement Speed 1/min : 600 1st pressure hPa : 310 Rack travel in m: 12.10...12.30 2nd pressure hPa : 470 Rack travel in m: 13.70...13.90 3rd pressure hPa : 820 Rack travel in m: 14.90...15.10 4th pressure hPa : 1100 Rack travel in m: 15.90...16.00 5th pressure hPa : -Rack travel in m: 11.40...11.50 START CUT-OUT Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1150 rpm : 1050 Speed Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1150 Speed rpm : 850 Del.quantity cm3/: 247.0...251.0 1000 s: (244.0...254.0) Spread cm3 : 8.001000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.40 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

Note remarks

: MB 14,7 b Test sheet Edition : 25.03.88 Replaces : 18.9.87 Test oil : ISO-4113

Combination no. : 0 402 648 824

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQV300..1050PA797 Governer no. : 0 421 813 532

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 LA

1st version kW : 320.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

4- 1

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - B : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.0...22.2

100 s: (21.7...22.5)

cm3 : 0.5

Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.6 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Spread cm3: 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 300

: 1.20...1.40 travel mm

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 1075 travel mm : 7.40...7.60

4th speed rpm : 1100

travel mm : 8.00...8.20

5th speed rpm: 1150

travel mm : 9.00...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1125 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 680 Del.quantity : 220.0...222.0 1000 : (217.0...225.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 54...62 Testing: 1st rack travel in: 14.20 грт : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 15...23 Testing: : 100 Speed rpm Minimum rack trave: 7.90 rpm : 300 Rack travel in mm : 6.20...6.40 CONSTANT REGULATION Speed rpm : 300...500

TORQUE CONTROL Dimension a mm : 0.40 2nd speed rpm : 1050

Rack travel in m: 15.20...15.40

3rd speed rpm : 850

Rack travel in m: 15.80...16.10

Aneroid/Altitude Compensator Test

1st version Setting rpm : 600 Speed Pressure hPa : 680

Rack travel mm : 14.70...14.90

Measurement 1/min: 600 Speed

1st pressure hPa : 310 Rack travel in m: 12.10...12.30

2nd pressure hPa : 470

Rack travel in m: 13.70...13.90

3rd pressure hPa : 820 Rack travel in m: 14.90...15.00 4th pressure hPa : 1100 Rack travel in m: 15.90...16.00

5th pressure hPa : -

Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1150

rpm : 1050 Speed Del.quantity cm3/: 228.0...234.0

1000 s: (225.0...237.0) cm3 : 8.00 Spread

1000 s: (12.0) Aneroid pressure h: 1150 Speed rpm : 850

Del.quantity cm3/: 247.0...251.0 1000 s: (244.0...254.0)

Spread cm3 : 8.001000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.20

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

D03

Note remarks

Test sheet Edition a10,7 a10 : MB : 11.03.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 833

Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

Governor

Governor design. : RQV300..1050PA866-3

Governer no. : 0 421 813 703

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 A

1st version kW : 260.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)
Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40 2nd speed rpm : 600

travel mm : 4.90...5.10
3rd speed rpm : 1100

travel mm : 8.00...8.50

4th speed rpm : 1170

travel mm : 9.20...9.80

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1090 Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 1100 Del.quantity : 181.0...183.0 1000 : (178.0...186.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 11.80 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm : 200 Minimum rack trave: 7.30 rpm : 300 Speed Rack travel in mm : 5.60...5.80 CONSTANT REGULATION Speed rpm : 300...500 TORQUE CONTROL Dimension a mm : 1.60 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.80...12.90 : 750 2nd speed rpm Rack travel in m: 14.40...14.60 3rd speed rpm : 950 Rack travel in m: 13.50...13.60 4th speed rpm : 830 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed man Pressure hPa : -: 11.20...11.50 Rack travel mm

Rack travel in m: 11.90...12.10 2nd pressure hPa : 600 Rack travel in m: 13.60...13.80 START CUT-OUT 1/min : 270 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 Speed : 700 Lbw Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1100 : 1050 Speed rpm Del.quantity cm3/ : 152.0...154.0 * 1000 s: (149.0...157.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0) cm3 : 8.00 Legral 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.80 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 180.0...200.0 1000 s: (176.0...204.0) Remarks:

* = Set at reduced-delivery stop.

Measurement

Speed 1/min: 600

1st pressure hPa : 420

D05

Note remarks

Test sheet Edition : MB 14,7 i : 22.04.88

Replaces

Test oil : ISO-4113

Combination no. : 0 '92 648 843

Injection pump

Pump designation : PE8P120A320LS7815 EP type number : 0 412 628 827

Governor

Governor design. : RQV350..1050PA870-2

Governer no. : 0 421 813 687

Customer-spec. information

Customer : DAIMLER-BENZ

: OM442LA Engine

1st version kW : 350.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 15.10...15.20

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

cm3 : 0.5 Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.0...5.6 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.90...2.10
2nd speed rpm : 700

travel mm : 4.10...4.50

3rd speed rpm : 1100

travel mm : 7.60...8.00

4th speed rpm : 1200

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm : 1150 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Rack travel in m: 13.10...13.30 Aneroid pressure h: 1700 3rd pressure hPa : 1260 : 254.0...256.0 Rack travel in m: 14.70...14.90 Del.quantity 1000 : (251.0...259.0) 4th pressure hPa : 1400 : 5.00 Spread cm3 Rack travel in m: 15.10...15.30 1000 : (9.00) 5th pressure hPa : -Rack travel in m: 8.80...9.20 RATED SPEED START CUT-OUT 1st version Control lever 1/min: 270 (290) Speed position degrees: 61...69 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 14.10 rpm : 1090...1100 Speed 1st version 2nd rack travel in: 4.00 Aneroid pressure h: 1000 rpm : 1190...1220 rpm : 600 Speed Del.quantity cm3/: 239.0...241.0 1000 s: (236.0...244.0) 4th rack travel in: 1300 rpm : 0.00...1.00 Speed cm3 : 8.00Spread LOW IDLE 1 1000 s: (12.0) Aneroid pressure h: 1700 Control lever position degrees: 9...17 Speed rpm : 900 Del.quantity cm3/: 264.0...267.0 1000 s: (261.0...270.0) Testing: Speed cm3 : 8.00rpm : 200 Spread Minimum rack trave: 7.70 1000 s: (12.0) : 350 Aneroid pressure h: 700 rpm Speed rpm : 1050
Del.quantity cm3/ : 194.0...196.0 *
1000 s: (191.0...199.0)
Spread cm3 : 8.00 Rack travel in mm : 5.00...5.60 CONSTANT REGULATION rpm : 350...600 Speed 1000 s: (12.0) TORQUE CONTROL Aneroid pressure h: rpm : 500 Dimension a mm : 0.30 Speed Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 15.10...15.20 cm3 : 8.00Spread 2nd speed rpm : 1000 1000 s: (-) Rack travel in m: 15.20...15.40 3rd speed rpm : 930 Rack travel in m: 15.40...15.50 BREAKAWAY Aneroid/Altitude 1st version Compensator Test 1mm rack travel less than full load rack tr: 14.10 rpm : 1090...1100 1st version Speed Setting : 600 rpm STARTING FUEL DELIVERY Speed hPa : 1000 Pressure Rack travel mm : 14.50...14.70 Speed rpm : 100 Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Measurement 1/min : 600 Speed 1st pressure hPa : 330 Remarks: Rack travel in m: 10.20...10.40 • 2nd pressure hPa : 600

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<pre>* = Set at reduced-delivery stop.</pre>	
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DO8	

Note remarks

Test sheet : MB 14,7 k Edition : 16.06.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 845

Injection pump

Pump designation : PE8P120A320LS7816

EP type number : 0 412 628 829

Governor

Governor design. : RQV300..1050PA797-5

Governer no. : 0 421 813 702

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 LA Engine

1st version kW : 353.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm: 5.9...6.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 800

travel mm : 5.80...6.10

3rd speed rpm : 1120

travel mm : 8.20...8.80 4th speed rpm : 1180

: 9.60 ... 10.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900 : 234.0...237.0 Del.quantity 1000 : (231.0...240.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 13.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 18...26 Testing: rpm : 200 Speed Minimum rack trave: 8.00 rpm : 300 Rack travel in mm : 5.90...6.50 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 1.30 2nd speed rpm : 1050 Rack cravel in m: 14.40...14.60 3rd speed rpm : 800 Rack travel in m: 14.90...15.10 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 900 Rack travel mm : 13.60...13.80 Measurement Speed 1/min: 600

4th pressure hPa : 1500 Rack travel in m: 14.80...14.90 5th pressure hPa : -Rack travel in m: 9.90...10.20 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 rpm : 1050 Dei.quantity cm3/: 252.0...256.0 1000 s: (249.0...259.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1600 rpm : 800 Del.quantity cm3/: 263.0...267.0 1000 s: (260.0...270.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0) Remarks:

1st pressure hPa : 350

2nd pressure hPa : 650

Rack travel in m: 11.10...11.30

Rack travel in m: 12.90...13.00 3rd pressure hPa : 1350 Rack travel in m: 14.50...14.70

Note remarks

Test sheet : MB 14,7 m Edition : 16.05.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 849

Injection pump

Pump designation : PE8P120A320LS7810

EP type number : 0 412 628 819

Governor

Governor design. : RQV300..1050PA797-7 Governor no. : 0 421 813 707

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 LA

1st version kW : 368.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 19.50...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 23.9...24.1

100 s: (23.6...24.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.2...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

rpm : 800 2nd speed travel mm

: 5.80...6.10

rpm : 1120 3rd speed

: 8.20...8.80 travel mm : 8.20.

4th speed

: 9.60 ... 10.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900 Del.quantity : 239.0...241.0 1000 : (236.0...244.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 14.10 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm : 1165...1195 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 18...26 Testing: Speed rpm : 200 Minimum rack trave: 8.00 rom : 300 Speed Rack travel in mm : 5.80...6.10 CONSTANT REGULATION Speed rpm : 300...500 TORQUE CONTROL Dimension a mm : 0.25 2nd speed rpm : 1050 Rack cravel in m: 15.10...15.30 3rd speed rpm : 800 Rack travel in m: 13.30...15.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 900 Pressure Rack travel mm : 14.30...14.50 Measurement Speed 1/min: 600 1st pressure hPa : 320 Rack travel in m: 9.90...10.10

4th pressure hPa : -Rack travel in m: 8.70...8.90 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1050 Speed Del.quantity cm3/: 257.0...260.0 1000 s: (254.0...263.0) cm3 : 8.00 Spread 1000 s: (12.) Aneroid pressure h: 1500 Speed rpm : 800 Del.quantity cm3/: 265.0...269.0 1000 s: (262.0...272.0) cm3 : 8.00 Spread 1000 s: (12.00 rpm : 500 Speed Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0) cm3 : 8.00 Spread 1000 s: (12.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.10 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks:

2nd pressure hPa : 620

3rd pressure hPa : 1100

Rack travel in m: 13.00...13.20

Rack travel in m: 14.40...14.50

Note remarks

: MB 21,9 y 2 Test sheet : 13.06.88 Edition : 12.11.87 : ISO-4113 Replaces Test oil

Combination no. : 0 402 670 805

Injection pump

Pump designation : PE12P12OA32OLS7807-2

EP type number : 0 412 620 812

Governor

Governor design. : RSV375..1050P0A535-1

Governer no. : 0 421 833 282

Customer-spec. information

: DAIMLER-BENZ Customer

: OM 444 LA Engine

1st version kW : 491.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 12- 1- 5- 9- 8- 3-

4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

rpm: 650 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 21.6...21.9

100 s: (21.3...22.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 375.0 2nd speed

Rack travel in mm : 5.5...5.8 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

008 : mar Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 650 Speed Aneroid pressure h: 800

: 216.0...219.0 Del.quantity 1000 : (213.0...222.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 36...44

Testing:

1st rack travel in: 13.70

Speed rpm : 1070...1080 2nd rack travel in: 4.00

rpm : 1130...1160 Speed

4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 375 Rack travel in mm: 5.6

Testing:

Speed rpm : 100 Minimum rack trave: 9.50

Speed rpm : 375

Rack travel in mm : 5.50...5.80

SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030

Rack travel in m: 14.70...14.90

2nd speed rpm : 925 Rack travel in m: 15.10...15.30

3rd speed rpm : 830

Rack travel in m: 15.50...15.70

Aneroia/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600 hPa : 800 Pressure

Rack travel mm : 14.70...14.90

Measurement

1/min : 600 Speed

1st pressure hPa : 350

Rack travel in m: 12.20...12.40

2nd pressure hPa : 550

Rack travel in m: 13.70...13.90

3rd pressure hPa : 1000

Rack travel in m: 15.00...15.20

4th pressure hPa : 1100

Rack travel in m: 15.40...15.60

5th pressure hPa : -

Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1250

Speed rpm : 1030 Del.quantity cm3/ : 221.0...223.0 1000 s: (218.0...226.0)

Spread cm3 : 8.00

1000 s: (12.0) Aneroid pressure h: 1250

Speed rpm : 800

Del.quantity cm3/: 237.0...241.0

1000 s: (234.0...244.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 134.0...136.0

1000 s: (131.0...139.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm ruck travel less than

full load rack tr: 13.70

Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

Note remarks

: MB 21,9 y 3 Test sheet : 08.06.88 Edition

Replaces Test oil : ISO-4113

Combination no. : 0 402 670 806

Injection pump

Pump designation : PE12P12OA32OLS7807-2

EP type number : 0 412 620 812

Governor

Governor design. : RSV350..1050P0A538

Governer no. : 0 421 833 300

Customer-spec, information

: DAIMLER-BENZ Customer

Engine : OM 444 A

1st version kW : 390.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 17.2...17.4

100 s: (16.9...17.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Decree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030 Aneroid pressure h: 900

Del.quantity : 172.0...177.0)

1000 : (169.0...177.0)

Societad cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.40

Speed rpm: 1070...1080 2nd rack travel in: 4.00

Speed rpm : 1130...1160 4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5.7

Testing:

Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 350

Rack travel in mm : 5.60...5.80

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030
Rack travel in m: 12.40...12.50
2nd speed rpm : 950

Rack travel in m: 12.90...13.10

3rd speed rpm : 875

Rack travel in m: 13.40...13.60

4th speed rpm : 750

Rack travel in m: 13.90...14.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : -Pressure

Rack travel mm : 10.50...10.80

Measurement

1/min : 500 Speed

1st pressure hPa : 300

Rack travel in m: 11.30...11.50 2nd pressure hPa : 500

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed

Del.quantity cm3/: 206.0...210.0 1000 s: (203.0...213.0) Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 136.0...138.0

1000 s: (133.0...141.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

Note remarks

Test sheet : MB 14,7 g 3 Edition : 08.06.88 : 7.12.87 Replaces Test oil : ISO-4113

Combination no. : 0 402 678 808

Injection pump

Pump designation : PE8P120A320LS7801-2 EP type number : 0 412 628 825

Governor

Governor design. : RSV350...1050P0A535

: 0 421 833 281 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 320.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (4.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 21.5...21.8

100 s: (21.2...22.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3: 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Governor spring pre-tension

Rack travel in mm : 0.30...0.70

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 750

Del.quantity : 215.0...218.0 1000 : (212.0...221.0)

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 36...44 Testing: 1st rack travel in: 14.00 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1400 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 13...21 Setting point W/out bumper spring rpm : 350 Rack travel in mm: 5.7 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 350 Rack travel in mm : 5.60...5.80 Rack travel in mm: 2.00 rpm : 360...420 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 15.00...15.20 2nd speed rpm : 850 Rack travel in m: 15.70...15.90 3rd speed rpm : 925 Rack travel in m: 15.40...15.60 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 750 Rack travel mm : 14.50...14.60 Measurement Speed 1/min: 600 1st pressure hPa : 400 Rack travel in m: 12.20...12.40 2nd pressure hPa : 550 Rack travel in m: 13.70...13.90

Rack travel in m: 11.20...11.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1250 rpm : 1030 Speed Del.quantity cm3/: 230.0...232.0 1000 s: (227.0...235.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1250 rpm : 850 Speed Del.quantity cm3/: 242.0...245.0 1000 s: (239.0...248.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0) Spread cm3 : 8.00 1000 s: (-) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.00 rpm : 1070...1080 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Remarks: Observe VDT-I-420/120

3rd pressure hPa : 950

5th pressure hPa : -

Rack travel in m: 14.90...15.10 4th pressure hPa : 1050 Rack travel in m: 15.30...15.50

Note remarks

Test sheet : MAC 11,1a11 : 30.05.89 Edition Replaces : 10.2.89 Test oil : ISO-4113

Combination no. : 0 402 736 800

Injection pump

: PES6P120A720/3RS7135 Pump designation

EP type number : 0 412 726 818

Governor

Governor design. : RQV325..1050PA848-20

: 0 421 815 203 Governer no.

Customer-spec. information Customer : MACK

: EM6 300 2VH Engine

: 224.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm : (2.70...2.90)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.8...5.0
Del.quantity cm3/: 3.8...4.4
100 s: (3.6...4.6)
Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.40...1.60 travel mm

rpm : 450 2nd speed

: 2.50...2.80 travel mm

rpm : 800 3rd speed

: 4.80...5.00 travel mm

rpm : 1050 4th speed

: 7.30...7.60 travel mm

rpm : 1200 5th speed

travel mm : 9,40,,,9,60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1200

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 900 : 199.0...201.0 1000 : (196.0...204.0) Del.quantity : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st račk travel in: 11.90 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: rpm : 275 Speed Minimum rack trave: 6.30 Speed rpm: 325 Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rpm : 325...600 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.90...13.00 2nd speed rpm : 630 Rack travel in m: 13.00...13.10 3rd speed rpm : 500 Rack travel in m: 0.00...12.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 630 Speed Pressure hPa : 900 Rack travel mm : 13.00...13.10 Measurement Speed 1/min : 630

3rd pressure hPa : 410 Rack travel in m: 11.40...11.80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed rpm : 630 Del.quantity cm3/ : 213.0...219.0 1000 s: (210.0...222.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 121.0...125.0 1000 s: (119.0...127.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 110.0...150.0 1000 s: (100.0...160.0) Rack travel in mm: 7.80...8.20 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 38.0...44.0 1000 s: (36.0...46.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: Delivery-valve spring pre-tension

3.0...3.2 mm.

APPLICATION

Omnibus

D20

1st pressure hPa : -

2nd pressure hPa : 190

Rack travel in m: 7.80...8.20

Rack travel in m: 9.10...9.20

BOSCH INJ. PUMP TEST SPECIFICATIONS : 5.20...5.30 Prestroke mm : (5.15...5.35) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 5- 4- 2 Test sheet : MB 10,0 c 2 Edition : 29.04.88 Replaces Test oil : ISO-4113 : 0-72-144-216-288 Phasing Combination no. : 0 402 745 801 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PESSP120A720LS7101 EP type number : 0 412 725 800 BASIC SETTING Governor Governor design. : RQV300..1050PA759 1st speed rpm : 1050 Governer no. : 0 421 813 489 Rack travel in mm : 13.80...13.90 Customer-spec. information Del.quantity cm3/: 20.1...20.3 Customer : DAIMLER-BENZ Engine : 0M429 LA 100 s: (19.8...20.6) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil 100 s: (0.9) inlet temp. °C : 38...42 rpm : 300.0 2nd speed Rack gravel in mm: 6.0...6.4 Overflow valve : 1 417 413 025 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Inlet press., bar : 1.50 cm3 : 0.8Spread 100 s: (1.2) Over flow quantity min. 1/h: 100...110 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Opening travel mm : 1.20...1.40 pressure, bar : 207...210 2nd speed rpm : 650 : 5.10...5.40 travel mm rpm : 1100 Orifice plate 3rd speed : 7.90...8.30 diameter mm : 0,8 travel mm rpm : 1180 4th speed : 9.50...10.00 travel mm Test lines : 1 680 750 067 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 x Length mm : 6.00x1.50x1000 Speed rpm : 1110

Rack travel in mm : 15.10...17.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1050 Aneroid pressure h: 700 Del.quantity : 201.0...203.0 1000 : (198.0...206.0)

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values _____

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 12.80

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 14...22

Testing:

Speed rpm: 200 Minimum rack trave: 8.00 Speed rpm: 300

Rack travel in mm : 6.90...6.20

CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : -

Rack travel mm : 12.00...12.30

Measurement

Speed 1/min: 500

1st pressure hPa : 240

Rack travel in m: 12.30...12.40

2nd pressure hPa : 350

Rack travel in m: 13.30...13.50

START CUT-QUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 600

Del.quantity cm3/: 197.0...201.0

1000 s: (194.0...204.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 700 Speed rpm : 900

Dei.quantity cm3/: 204.0...208.0

1000 s: (201.0...211.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 157.0...159.0

1000 s: (154.0...162.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 160.0...180.0

1000 s: (156.0...184.0)

Remarks:

D22

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 3- 5- 4- 2 Firing order Note remarks : MB 10,0 c 1 : 03.04.87 Test sheet Phasing : 0-72-144-216-288 Edition Tolerance + - 0 : 0.50 (0.75) Replaces Test oil : ISO-4113 Time to cyl. no. : 5 Combination no. : 0 402 745 802 BASIC SETTING Injection pump Pump designation : PESSP120A720LS7101 1st speed rpm: 1050 EP type number : 0 412 725 800 Rack travel in mm : 12.50...12.60 Governor Governor design. : RQ300/1050PA690-1 Governer no. : 0 421 801 392 Del.quantity cm3/: 17.9...18.1 Customer-spec. information Customer : DAIMLER-BENZ Spread cm3 : 0.5Engine : 0M429 LA TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve cm3 : 0.8 Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow Degree: -2 rpm : 600 quantity min. 1/h: 100...110 Speed Test nozzle holder assembly : 1 688 901 019 Opening 1st version pressure, bar : 207...210 Speed rpm : 1050 Aneroid pressure h: 700 Del.quantity Test lines : 1 680 750 067 : 5.00 cm3 Spread Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ Speed rpm : 600 Rack travel in mm: 20.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 11.50 Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 9.00...12.00

D23

100 s: (17.6...18.4) 100 s: (0.9) 2nd speed rpm : 300.0 Rack travel in mm : 6.0...6.4 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5) Rack travel in mm: 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP : 179.0...181.0 1909 : (176.9...184.9) 1000 : (9.00) Speed rpm : 1095...1110 2nd rack travel in: 4.00 Speed rpm : 1135...1175

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 7.70
Speed rpm: 300
Rack travel in mm: 6.00...6.20

Rack travel in mm : 2.00 Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed

hPa :-Pressure

Rack travel mm : 12.00...12.30

Measurement

1/min : 500 Speed

1st pressure hPa : 240

Rack travel in m: 12.10...12.20

2nd pressure hPa : 350

Rack travel in m: 12.30...12.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

rpm : 600 Speed

Del.quantity cm3/: 179.0...185.0 1000 s: (176.0...188.0)

cm3 : 8.00 Spread

1000 s: (12.0) Aneroid pressure h: -

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 160.0...180.0

1000 s: (156.0...184.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 5.20...5.30 Prestroke mm : (5.15...5.35) Rack travel in mm : 20.00...21.00 Note remarks Firing order : 1- 3- 5- 4- 2 Test sheet : MB 10,0 g : 11.03.88 Edition Replaces Test oil : ISO-4113 : 0-72-144-216-288 Phasing Tolerance + - D Combination no. : 0 402 745 803 : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PESSP120A720LS7152 EP type number : 0 412 725 801 BASIC SETTING Governor Governor design. : RQ300/1050PA690-2 rpm: 1050 1st speed Governer no. : 0 421 801 427 Rack travel in mm : 13.70...13.80 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 20.9...21.1 Engine : 0M429 LA 100 s: (20.6...21.4) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil 100 s: (0.9) inlet temp. °C : 38...42 rpm : 300.0 2nd speed Rack travel in mm: 6.3...6.6 Overflow valve Del.quantity cm3/: 1.6...2.2 : 1 417 413 025 100 s: (1.3...2.5) cm3 : 0.8 Inlet press., bar: 1.50 Spread 100 s: (1.2) Overflow quantity min. 1/h: 100...120 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 : 1 688 901 019 assembly rpm : 600 Speed Rack travel in mm: 19.20...20.80 Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter mm : 0,8 Speed Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm RATED SPEED

Speed rpm: 1050
Aneroid pressure h: 800
Del.quantity: 209.0..211.0
1000: (206.0...214.0)
Spread cm3: 5.00
1000: (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm: 600
Rack travel in mm: 20.0

Testing:
1st rack travel in: 12.70

(A) Injection pump setting values

per values ____

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

rpm : 1095...1110 Speed 2nd rack travel in: 4.00

Speed rpm : 1160...1190

4th rack travel in: 1300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 300

Rack travel in mm: 6.4

Testing:

Speed rpm : 200 Minimum rack trave: 8.30 rpm : 300 Speed

Rack travel in mm : 6.30...6.60

Rack travel in mm: 2.00 Speed rom : 365...405

Aneroid/Altitude Compensator Test

1st version

Setting

rom : 500 Speed hPa :-Pressure

Rack travel mm : 11.20...11.50

Measurement

Speed 1/min: 500

1st pressure hPa : 250

Rack travel in m: 11.40...11.50

2nd pressure hPa : 500

Rack travel in m: 12.70...12.90

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 600 Speed

Del.quantity cm3/: 204.0...210.0 1000 s: (201.0...213.0)

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 135.0...137.0

1000 s: (132.0...140.0) cm3 : 8.00

Spread

1000 s: (12.0)

BREAKAWAY

D26

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

Note remarks

Test sheet : MB 10,0 r : 15.08.89 Edition Replaces : 8.5.89 Test oil : ISO-4113

Combination no. : 0 402 745 807

Injection pump

Pump designation : PESSP120A720LS7174 EP type number : 0 412 725 806

Governor

Governor design. : RQ300/1050PA774-2

Governer no. : 0 421 801 450

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M449 A

1st version kW : 184.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.4...7.0 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 650

Del.quantity : 196.0...198.0 1000 : (193.0...201.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm: 20.0 Testing:

1st rack travel in: 13.40

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300° Rack travel in mm: 6.7

Testing:

Speed : 200 rpm

Minimum rack trave: 8.70

: 300 Speed rpm

Rack travel in mm : 6.40...7.00

Rack travel in mm: 2.00

Speed : 485...525 rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 14.40...14.60

2nd speed rpm : 750

Rack travel in m: 14.90...15.10

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rom

hPa : 650 Pressure

Rack travel mm : 14.10...14.30

Measurement

1/min: 600 Speed

1st pressure hPa : 250

Rack travel in m: 12.20...12.40

2nd pressure hPa : 400

Rack travel in m: 13.50...13.70

3rd pressure hPa : 750
Rack travel in m: 14.20...14.30 *

4th pressure hPa : 850

Rack travel in m: 14.60...14.80

5th pressure hPa : -

Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 1050 Speed rpm

Del.quantity cm3/: 208.0...211.0

1000 s: (205.0...214.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1200 Speed : 750

rpm Del.quantity cm3/: 216.0...220.0

1000 s: (213.0...223.0) cm3 : 8.00

Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 150.0...152.0

1000 s: (147.0...155.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed : 100 CDM

Del.quantity cm3/: 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 10,0 v : 15.08.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 745 808

Injection pump

Pump designation : PESSP120A720LS7175

EP type number : 0 412 725 807

Governor

Governor design. : RQ300/1050PA774-4

Governer no. : 0 421 801 453

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M449 LA Engine

1st version kW : 221.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 1- 3- 5- 4- 2

Firing order

Phasing : 0-72-144-216-288

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.5...23.7

100 s: (23.2...24.0)

cm3 : 0.5 Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 5.6...5.9
Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 800

Del.quantity : 235.0...237.0 1000 : (232.0...240.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm: 20.0 Testing:

1st rack travel in: 12.00

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

Speed rpm : 1160...1190

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300

Rack travel in mm: 5.7

Testing:

Speed rpm : 200

Minimum rack trave: 7.60

Speed : 300 rpm

Rack travel in mm : 5.60...5.90

Rack travel in mm : 2.00

: 370...410 Speed rpm

TORQUE CONTROL

Dimension a mm : 0.65

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 13.00...13.20

2nd speed rpm : 750

Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 Speed

hPa : 800 Pressure

Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200

Rack travel in m: 11.00...11.20

2nd pressure hPa : 450

Rack travel in m: 13.00...13.20

3rd pressure hPa : 1000

Rack travel in m: 13.70...13.80 *

4th pressure hPa : 1125

Rack travel in m: 14.10...14.30

5th pressure hPa : -

Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 1050

Del.quantity cm3/: 228.0...231.0

1000 s: (225.0...234.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: 1400

: 750 Speed Lbw

Del.quantity cm3/: 250.0...254.0

1000 s: (247.0...257.0)

cm3 : 8.00Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 146.0...148.0

1000 s: (143.0...151.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 10,0 m 2 : 16.06.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 745 809

Injection pump

Pump designation : PES5P120A720LS7160

EP type number : 0 412 725 802

Governor

Governor design. : RQV300..1050PA797-8

Governer no. : 0 421 813 756

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M449 A

1st version kW : 184.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)
Rack travel in mm : 20.00...21.00

Firing order : 1- 3- 5- 4- 2

: 0-72-144-216-288 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

Spread cm3 : 0.5

100 s: (0.9)

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 300

travel mm : 1.10...1.30

2nd speed rpm : 600

: 4.90...5.10 travel mm

3rd speed rpm: 800

travel mm : 5.80...6.10

4th speed rpm : 1100

travel mm : 8.20...8.60

5th speed rpm : 1175

: 9.50...10.10 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1070

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 650 : 196.0...198.0 Del.quantity 1000 : (193.0...201.0) cm3 : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 12.60 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Testing: Speed : 200 Cbm Minimum rack trave: 8.00 rpm : 300 Rack travel in mm : 5.70...6.30 CONSTANT REGULATION rpm : 300...400 Speed TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.60...13.80 ad speed rpm : 750 2nd speed rpm Rack travel in m: 14.00...14.20 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 650 Rack travel mm : 13.10...13.30 Measurement Speed 1/min : 600 1st pressure hPa : 250

3rd pressure hPa : 750 Rack travel in m: 13.20...13.30 * 4th pressure hPa : 850 Rack travel in m: 13.60...13.80 5th pressure hPa : -Rack travel in m: 10.80...11.10 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/: 208.0...211.0 1000 s: (205.0...214.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 : 750 Speed rpm Del.quantity cm3/: 216.0...220.0 1000 s: (213.0...223.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed : 500 rpm Del.quantity cm3/: 150.0...152.0 1000 s: (147.0...155.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.60 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks:

* Increase in control-rod travel with

respect to setting at least 0.1 mm

Rack travel in m: 11.20...11.40

2nd pressure hPa : 400

Rack travel in m: 12.50...12.70

E04

Note remarks

Test sheet : MB 10.0 o 2 Edition : 15.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 745 810

Injection pump

Pump designation : PES5P120A720LS7163

EP type number : 0 412 725 803

Governor

Governor design.: RQV300..1050PA797-9

Governer no. : 0 421 813 757

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M449 LA Engine

1st version kW : 221.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.5...23.7

100 s: (23.2...24.0)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.6...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.10...1.30 travel mm

2nd speed rpm : 600

travel mm : 4.90...5.10

rpm : 800 3rd speed

travel mm : 5.80...6.10 4th speed rpm : 1100

: 8.20...8.60 travel mm

5th speed rpm: 1175

travel mm : 9.50...10.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1070 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 800 Del.quantity : 255.0...240.0) Spread : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 12.00 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1250 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 16...24 Testing: Speed : 200 грт Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 5.60...5.90 CONSTANT REGULATION rpm : 300...400 Speed TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.00...13.20 d speed rpm : 750 2nd speed rpm Rack travel in m: 14.40...14.60 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 800 Pressure : 13.60...13.80 Rack travel mm Measurement 1/min: 600 Speed

3rd pressure hPa : 1000 Rack travel in m: 13.70...13.80 * 4th pressure hPa : 1125 Rack travel in m: 14.10...14.30 5th pressure hPa : -Rack travel in m: 10.00...10.40 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 1050 Speed Del.quantity cm3/: 228.0...231.0 1000 s: (225.0...234.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1400 rpm : 750 Speed Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks:

* Increase in control-rod travel with

respect to setting at least 0.1 mm

1st pressure hPa : 200

Rack travel in m: 11.00...11.20

2nd pressure hPa : 450

Rack travel in m: 13.00...13.20

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : SCA 9.0 c : 19.05.88 Test sheet Edition : 15.5.87 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 801 Injection pump Pump designation : PE6P12OA32ORS7103 EP type number : 0 412 626 805 Governor Governor design. : RQV200...1100PA712 Governer no. : 0 421 813 442 Customer-spec. information Customer : SAAB-SCANIA Engine : DSC9 01 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 7.00...12.50 & maximum rack tra: 21.00 Difference CS: 1.00...1.70 BASIC SETTING rpm: 700 1st speed Rack travel in mm : 12.50...12.60 Del.quantity cm3/: 17.8...18.0 100 s: (17.5...18.3) Spread cm3 : 0.7100 s: (1.0) 2nd speed rpm : 225.0 Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 1.5...1.9 100 s: (-) cm3 : 0.3 Spread 100 s: (0.6) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 225 : 1.10...1.50 travel mm rpm : 350 2nd speed travel mm : 2.60...3.20 rpm : 650 3rd speed travel mm : 4.30...4.90 rpm : 1145 4th speed : 7.50...7.70 travel mm 5th speed rpm : 1300 travel mm : 8.90...9.30 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1160 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP

Firing order

: 1-5-3-6-2-4

E07

per values ____

Test pressure, bar: 25...27

Rack travel in mm : 6.00...8.00

: 4.50...4.60 : (4.45...4.65)

BEGINNING OF DELIVERY

Prestroke mm

1st version rpm : 700 Speed Aneroid pressure h: 900 : 178.0...180.0 Del.quantity 1000 : (175.0...183.0) cm3 : 7.00 Spread 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 11.50 Speed rpm : 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1285...1315 4th rack travel in: 1450 rpm : 9.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 6...14 Testing: Speed rpm : 100 Minimum rack trave: 6.10 rpm : 225 Speed Rack travel in mm : 4.60...4.80 Rack travel in mm: 2.00 Speed : 295...355 man Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 900 Pressure Rack travel mm : 12.50...12.60 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.20...10.30 2nd pressure hPa : 435 Rack travel in m: 11.90...12.00 3rd pressure hPa : 335 Rack travel in m: 10.70...10.90 FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 900

rpm : 1100

Speed

E08

Del.quantity cm3/: 177.0...185.0 1000 s: (175.0...187.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 138.0...142.0 1000 s: (136.0...144.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 Speed rpm : 1140...1150 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 240.0...290.0 1000 s: (-) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 225
Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 15.0...19.0 cm3 : 3.00 Spread 1000 s: (6.00) Remarks: Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm. ADDITIONAL INFORMATION Check and set without ROBO diaphragam For comb. with letter index see VDT-I-400/116. For sealing see VDT-I-400/117. Scania test specifications taken over on Oct. 4, 1984 Start of delivery - engine: 180 before TDC at control-rod travel = 6.00...8.00 mm

Firing sequence of engine: 1-5-3-6-2-4. E09

Note remarks

Test sheet : MB 12,0 a 1 Edition : 07.03.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 806

Injection pump

Pump designation : PES6P120A720LS7114

EP type number : 0 412 726 802

Governor

Governor design. : RQ300/950PA774-1 Governor no. : 0 421 801 419

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447LA

1st version kW : 350.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.40...14.60

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.0...6.3
Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.8

Spread cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

peed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 750

Del.quantity : 240.0...242.0 1000 : (237.0...245.0)

Spread cm3 : 5.00

1000 : (9,00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm : 20.0 Testing:

1st rack travel in: 12.70

rpm : 995...1010 Speed

2nd rack travel in: 4.00

rpm : 1065...1095 Speed

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed

Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 7.80

: 300 Speed rpm

Rack travel in mm : 6.00...6.30

Rack travel in mm : 2.00

rpm : 380...420 Speed

TORQUE CONTROL

2nd speed rpm : 950

Rack travel in m: 13.70...13.90

3rd speed rpm : 750

Rack travel in m: 14.90...15.10

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 Speed hPa : 750 Pressure

Rack travel mm : 14.40...14.60

Measurement

Speed 1/min : 600

1st pressure hPa : 300

Rack travel in m: 11.60...11.80

2nd pressure hPa : 500

Rack travel in m: 13.50...13.70

3rd pressure hPa : 920

Rack travel in m: 14.50...14.70

4th pressure hPa : -

Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300 Speed rpm : 950

Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: 1300

: 750 Lbw

Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

1000 s: (12.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 230.0...250.0

:

1000 s: (226.0...254.0)

Remarks:

Note remarks

Test sheet : MB 11,7 f Edition : 08.06.88 Replaces : 31.7.87

: ISO-4113

Combination no. : 0 402 746 808

Injection pump

Pump designation : PES6P120A720LS7107

EP type number : 0 412 726 801

Governor

Governor design. : RQ300/1100PA805 Governer no. : 0 421 801 352

Customer-spec. information

Customer : DAIMLER-SENZ

: 0M447ha Engine

1st version kW : 206.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. "C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.8...6.2 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Decree: -2 rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 750

Del.quantity : 197.0...199.0 1000 : (194.0...202.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm: 20.0 Testing:

1st rack travel in: 12.40

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

rpm : 1220...1250 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.9

Testing:

Speed rpm : 100 Minimum rack trave: 7.50

rpm : 300

Rack travel in mm : 5.80...6.00

Rack travel in mm : 2.00

rpm : 380...420 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : − Pressure

Rack travel mm : 11.00...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : 230

Rack travel in m: 11.30...11.50 2nd pressure hPa : 370

Rack travel in m: 11.70...11.90

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750 rpm : 600

Del.quantity cm3/: 193.0...196.0

1000 s: (190.0...199.0)

cm3 : 8.00

Spread

1000 s: (12.)
Speed rpm : 500
Del.quantity cm3/ : 149.0...151.0

1000 s: (146.0...154.0)

cm3 : 8.00 Spread

1000 s: (12.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0

1000 s: (146.0...174.0)

Remarks:

APPLICATION

0mnibus

Note remarks

Test sheet : MAC 11,1 a Edition : 08.04.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 810

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design. : RQV325...900PA848K

Governer no. : 0 421 815 168

Customer-spec. information Customer : MACK

: E6-350 4VH Engine

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm : (2.70...2.90)

Rack travel in mm : 10.30...10.70

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.0...4.2 Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 3.10...3.30

3rd speed rpm : 850

: 5.90...6.10 travel mm

4th speed rpm : 1000

: 7.50...7.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1
Speed rpm: 1130
Rack travel in mm: 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 900

Del.quantity : 233.0...235.0 1000 : (230.0...238.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 12.90 rpm : 950...960 Speed

2nd rack travel in: 4.00

rpm : 1075...1105 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed rpm : 275 Minimum rack trave: 5.50 Speed rpm : 325

Rack travel in mm : 4.00...4.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 13.90...14.00

2nd speed rpm : 625

Rack travel in m: 14.10...14.20

3rd speed rpm : 800

Rack travel in m: 14.00...14.10
4th speed rpm : 500
Rack travel in m: 0.00...13.50

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 625 Pressure hPa : 900

Rack travel mm : 14.10...14.20

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 275

Rack travel in m: 10.00...10.10

3rd pressure hPa : 570

Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 625
Del.quantity cm3/: 254.0...260.0 1000 s: (251.0...263.0)

cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 136.0...140.0

1000 s: (134.0...142.0)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 12.90

rpm : 950...960 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (130.0...190.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

rpm : 325 Speed

Rack travel in mm: 4.00...4.20
Del.quantity cm3/: 32.0...38.0
1000 s: (30.0...40.0)
Spread cm3: 8.00

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : MAC 11,1 a1 Edition : 08.04.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 814

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design.: RQV325...850PA848-1K

Governer no. : 0 421 815 169

Customer-spec. information Customer

Engine : E6-300 4VH

1st version kW : 224.0 : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.30...10.70

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 20.0...20.2

100 s: (19.7...20.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack cravel in mm : 4.5...4.7 Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40 2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1100 Rack travel in mm: 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 900

Del.quantity : 200.5...202.5 1000 : (197.5...205.5)

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.90 rpm : 900...910 Speed 2nd rack travel in: 4.00

Speed rpm: 1025...1055 4th rack travel in: 1100

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 6.00 Speed rpm : 325

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 12.90...13.00

rpm : 700 2nd speed

Rack travel in m: 13.30...13.50

3rd speed rpm : 600

Rack travel in m: 13.50...13.70 th speed rpm : 500

4th speed rpm

Rack travel in m: 0.00...13.10

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 600 hPa : 900 Pressure

Rack travel mm : 13.50...13.70

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.80

2nd pressure hPa : 280

Rack travel in m: 10.40...10.50

3rd pressure hPa : 510

Rack travel in m: 12.20...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed Del. quantity cm3/: 217.0...223.0

1000 s: (214.0...226.0)

Aneroid pressure h: 900

Speed rpm : 600 Del.quantity cm3/: 233.0...239.0

1000 s: (230.0...242.0) cm3 : 8.00

Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 147.0...151.0

1000 s: (145.0...153.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 900...910

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 9.40...9.80

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

•

Note remarks

Test sheet : MAC 11,1 a2 Edition : 15.04.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 815

Injection pump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

Governor design. : RQV325...850PA848-2K

Governer no. : 0 421 815 170

Customer-spec. information Customer : MACK

Engine : E6-275 4VH

1st version kW : 202.0 : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.30...10.70

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 17.9...18.1

100 s: (17.6...18.4)

Spread cm3 : 0.5-

100 s: (0.9)

2nd speed rpm : 325.0
Rack travel in mm : 4.5...4.7 Del.quantity cm3/: 3.2...3.8

100 s: (3.0...4.0)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

: 6.20...6.40 travel mm

4th speed rpm : 1000

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1110 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Aneroid pressure h: 900

Del.quantity : 179.0...181.0 1000 : (176.0...184.0)

Spread cm3: 5,00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00 rpm : 900...910 Speed 2nd rack travel in: 4.00

rpm : 1025...1055 Speed

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 6.00 Speed : 325 rom

Rack travel in mm: 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.00...12.10

2nd speed rpm : 600 Rack travel in m: 12.60...12.70

3rd speed rpm : 700

Rack travel in m: 12.50...12.70

4th speed rpm : 500

Rack travel in m: 0.00...12.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm Pressure hPa : 900

Rack travel mm : 12.60...12.70

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.90

2nd pressure hPa : 215

Rack travel in m: 10.30...10.40

3rd pressure hPa : 360

Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 600 Speed

Del.quantity cm3/: 209.0...215.0 1000 s: (206.0...218.0)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400

Del.quantity cm3/: 144.0...148.0 1000 s: (142.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...200.0 1000 s: (150.0...210.0) Rack travel in mm: 9.50...9.90

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0

1000 s: (30.0...40.0)

cm3: 8.00 Spread 1000 s: (12,00)

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : MAC 11,1 a3 Edition : 07.01.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 816

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 9 412 726 807

Governor

Governor design.: RQV325...875PA848-3K

Governer no. : 0 421 815 171

Customer-spec. information Customer : MACK

: EM6-250L 4VH Engine

1st version kW : 186.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.50...10.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 16.0...16.2

100 s: (15.7...16.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.5...4.7 Del.quantity cm3/: 3.9...4.5

100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

rpm : 450 2nd speed

: 2.80...3.10 travel mm

rpm : 850 3rd speed

: 6.20...6.40 travel mm

4th speed rpm : 1000

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed Aneroid pressure h: 1200

Del.quantity : 160.0...162.0 1000 : (157.0...165.0)

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 9.80 Speed rpm : 925...935 2nd rack travel in: 4.00 Speed rpm : 1010...1040 4th rack travel in: 1100 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 9...17 Testing: : 275 Speed rpm Minimum rack trave: 6.00 Speed rpm: 325 Rack travel in mm : 4.50...4.70 CONSTANT REGULATION Speed rpm : 325...520 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 10.80...10.90 rpm : 510 2nd speed Rack travel in m: 13.00...13.20 3rd speed rpm : 600 Rack travel in m: 12.40...12.60 4th speed rpm : 700 Rack travel in m: 11.70...11.90 th speed rpm : 550 5th speed rpm Rack travel in m: 0.00...13.10 Aneroid/Altitude Compensator Test 1st version Setting rpm : 510 Speed Pressure hPa : 1200 Rack travel mm : 13.00...13.20 Measurement

1/min : 510

Rack travel in m: 9.20...9.40
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40

1st pressure hPa : -

3rd pressure hPa : 435 Rack travel in m: 12.20...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 510 Speed Del.quantity cm3/: 237.0...243.0 1000 s: (234.0...246.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 146.0...150.0 1000 s: (144.0...152.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.80 Speed rpm : 925...935 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 165.0...205.0 1000 s: (155.0...215.0) Rack travel in mm : 9.20...9.40 LOW IDLE Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm3/ : 39.0...45.0 1000 s: (37.0...47.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Speed

Note remarks

Test sheet : MAC 11,1 a4 Edition : 12.11.87

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 817

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design.: RQV325...900PA848-4K

Governer no. : 0 421 815 173

Customer-spec. information Customer : MACK

Engine : EC6-350 4VH

1st version kW : 261.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 17...19 Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.50...10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.60...14.70

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

rpm : 450 2nd speed

: 3.10...3.30 travel mm

3rd speed rpm : 850

travel mm : 5.90,..6.10

4th speed rpm : 1000

: 7.50...7.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: 63...65

Speed rpm : 1130

Rack travel in mm : 6.50...8.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1200

Del.quantity : 238.0...240.0 1000 : (235.0...243.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 13.60 Speed rpm: 950...960 2nd rack travel in: 4.00

rpm : 1090...1120 Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed Cpm : 275 Minimum rack trave: 6.60 rpm : 325 Speed

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 14.60...14.70

rpm : 625 2nd speed

Rack travel in m: 15.10...15.20

3rd speed rpm : 800

Rack travel in m: 14.80...14.90

4th speed rpm : 500

Rack travel in m: 0.00...14.50

Aneroid/Altitude Compensator Test

1st version

Setting

: 625 Speed rpm hPa : 1200 Pressure

Rack travel mm : 15.10...15.20

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 280

Rack travel in m: 10.40...10.50 3rd pressure hPa : 650

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 625 Del.quantity cm3/ : 262.0...268.0

1000 s: (259.0...271.0) cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 130.5...134.5

1000 s: (128.5...136.5)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 950...960

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 39.0...45.0

1000 s: (37.0...47.0) cm3 : 8.00

Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : MAC 11,1 a5 Edition : 12.11.87

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 818

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design. : RQV325...875PA848-5K

Governer no. : 0 421 815 174

Customer-spec. information Customer : MACK

: EM6-275L 4VH Engine

1st version kW : 202.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

> Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.50...10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 18.7...18.9

100 s: (18.4...19.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm : 4.6...4.8

Del.quantity cm3/ : 3.7...4.3

100 s: (3.5...4.5)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

: 6.20...6.40 travel mm

rpm : 1000 4th speed

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION Control-lever position

Degree: 63...65

Speed rpm : 1085

Rack travel in mm : 8.00...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed

Aneroid pressure h: 1200 Del.quantity : 187.0...189.0 1000 : (184.0...192.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.20 Speed rpm : 925...935 2nd rack travel in: 4.00

Speed

rpm : 1030...1060

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed : 275 rpm Minimum rack trave: 6.20 rpm : 325

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875
Rack travel in m: 12.20...12.30
2nd speed rpm : 510
Rack travel in m: 14.10...14.30
3rd speed rpm : 700

Rack travel in m: 13.20...13.40

4th speed rpm : 400

Rack travel in m: 0.00...13.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 510 Lbw Pressure hPa : 1200

Rack travel mm : 14.10...14.30

Measurement

1/min : 510 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.70
2nd pressure hPa : 330
Rack travel in m: 9.90...10.00

3rd pressure hPa : 685

Rack travel in m: 12.50...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 510
Del.quantity cm3/ : 260.0...266.0
1000 s: (257.0...269.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 131.0...135.0

1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...180.0

1000 s: (130.0...190.0)

Rack travel in mm: 8.50...8.70

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 37.0...43.0

1000 s: (35.0...45.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 11,1 a6 Test sheet : 07.01.88 Edition Replaces Test oil : ISO-4113 Phasing Combination no. : 0 402 746 819 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design.: RQV325...875PA848-6K 1st speed Governer no. : 0 421 815 175 Customer-spec. information : MACK Customer : EM6-225L 4VH Engine 1st version kW : 165.0 Spread Rated speed : 1750 TEST BENCH REQUIREMENTS 2nd speed Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly 1st speed Opening. travel mm pressure, bar : 207...210 2nd speed travel mm Orifice plate diameter mm : 0,6 4th speed Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 17...19 Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.50...10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

rpm: 875

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 15.6...15.8

100 s: (15.3...16.1)

cm3 : 0.5

100 s: (0.9)

rpm : 325.0 Rack ravel in mm : 4.6...4.8

Del.quantity cm3/ : 3.8...4.4

100 s: (3.6...4.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 325

: 1.20...1.40

rpm : 450 : 2.80...3.10

3rd speed rpm : 850

: 6.20...6.40 travel mm

rpm : 1000

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1110 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 900

Del.quantity : 156.0...158.0 1000 : (153.0...161.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 10.00 rpm : 925...935 Speed 2nd rack travel in: 4.00 Speed rpm : 1015...1045

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 275 Minimum rack trave: 6.10 rpm : 325

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 11.00...11.10

2nd speed rpm : 510

Rack travel in m: 13.20...13.40

3rd speed rpm : 600

Rack travel in m: 12.50...12.70
4th speed rpm : 700
Rack travel in m: 11.80...12.00
5th speed rpm : 350

Rack travel in m: 0.00...13.20

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 510 hPa : 900 Speed Pressure

Rack travel mm : 13.20...13.40

Measurement

1/min : 510 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.90

2nd pressure hPa : 220 Rack travel in m: 9.70...9.80

3rd pressure hPa : 500 Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 510 Del.quantity cm3/: 232.0...238.0 1000 s: (229.0...241.0)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400

Del.quantity cm3/: 131.0...135.0 1000 s: (129.0...137.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...175.0

1000 s: (125.0...185.0)

Rack travel in mm : 8.50...8.90

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 38.0...44.0

1000 s: (36.0...46.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : MAC 11,1 b5 Edition : 15.04.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 820

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design. : RQV325...850PA878K

Governer no. : 0 421 815 177

Customer-spec. information Customer : MACK

: E6-275 4VH Engine

1st version kW : 202.0 : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 908

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm: : (2.70...2.90)

Rack travel in mm : 10.30...10.70

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 17.9...18.1

100 s: (17.6...18.4)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack Gravel in mm: 4.5...4.7 Del.quantity cm3/: 3.2...3.8

100 s: (3.0...4.0)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

: 6.20...6.40 travel mm

4th speed rpm : 1000

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1110 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 900

Del.quantity : 179.0...181.0 1000 : (176.0...184.0)

Spread cm3 : 5.001000 : (9.00)

RATED SPEED

1st version Control lever position degrees: 52...60

Testing:

1st rack travel in: 11.00 Speed rpm : 900...910 2nd rack travel in: 4.00 Speed rpm : 1025...1055

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed rpm : 275 Minimum rack trave: 6.00 rpm : 325

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 12.00...12.10

2nd speed rpm : 600

Rack travel in m: 12.60...12.70

3rd speed rpm : 700

Rack travel in m: 12.50...12.70 th speed rpm : 500 Rack travel in m: 0.00...12.40

4th speed rpm

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 600 Speed

hPa : 900 mm : 12.60...12.70 Pressure

Rack travel mm

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 9.50...9.90

2nd pressure hPa : 215

Rack travel in m: 10.30...10.40 3rd pressure hPa : 360

Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 600

Del.quantity cm3/: 209.0...215.0 1000 s: (206.0...218.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 400

Del.quantity cm3/: 144.0...148.0 1000 s: (142.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 900...910 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...200.0

1000 s: (150.0...210.0)

Rack travel in mm : 9.50...9.90

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve soring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 10.30...10.70 Note remarks Firing order : MAC 11,1 b Test sheet Edition : 08.04.88 Replaces Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 402 746 821 Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design.: RQV325...850PA878-1K 1st speed Governer no. : 0 421 815 178 Rack travel in mm : 12.90...13.00 Customer-spec. information Customer : MACK Del.quantity cm3/: 20.0...20.2 : E6-300 4VH 100 s: (19.7...20.5) Engine 1st version kW : 224.0 Spread cm3 : 0.5: 1700 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Test oil Rack 'mavel in mm : 4.5...4.7 inlet temp. °C : 38...42 Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0) Overflow valve cm3 : 0.8 Spread : 2 417 413 011 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 101 travel mm Opening pressure, bar : 207...210 travel mm Orifice plate diameter mm : 0,6 travel mm travel mm Test lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00x2.00x600

(A) Injection pump setting values

per values

Test pressure, bar: 17...19

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.20...1.40 2nd speed rpm : 450 : 2.80...3.10 3rd speed rpm: 850 : 6.20...6.40 : 1000 4th speed rpm : 7.70...7.90 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1100 Speed Rack travel in mm : 7.00...13.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 850 Aneroid pressure h: 900 Del.quantity : 200.5...202.5 1000 : (197.5...205.5)

: 2.75...2.85

: 0.50 (0.75)

rpm: 850

: (2.70...2.90)

: 1-5-3-6-2-4

: 0-60-120-180-240-300

F02

x Length mm

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.90 rpm : 900...910 Speed

2nd rack travel in: 4.00

Speed rpm : 1025...1055 4th rack travel in: 1100

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed rpm : 275 Minimum rack trave: 6.00 rpm : 325

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.90...13.00

2nd speed rpm : 700

Rack travel in m: 13.30...13.50

3rd speed rpm : 600

Rack travel in m: 13.50...13.70

: 500 4th speed rpm

Rack travel in m: 0.00...13.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 Pressure hPa : 900

Rack travel mm : 13.50...13.70

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.80

2nd pressure hPa : 280

Rack travel in m: 10.40...10.50

3rd pressure hPa : 510

Rack travel in m: 12.20...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700 Del.quantity cm3/ : 217.0...225.0 1000 s: (214.0...226.4)

Aneroid pressure h: 900

Speed rpm : 600 Del.quantity cm3/: 233.0...239.0

1000 s: (230.0...242.0)

cm3 : 8.00Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 147.0...151.0

1000 s: (145.0...153.0)

BREAKAWAY

1st version

imm rack travel less than

full load rack tr: 11.90

Speed rpm : 900...910

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0) Rack travel in mm: 9.40...9.80

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0

1000 s: (30.0...40.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet Edition : MAC 11,1 b1 : 08.04.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 822

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design. : RQV325...900PA878-2K

Governer no. : 0 421 815 179

Customer-spec. information Customer : MACK

: E6-350 4VH Engine

1st version kW : 261.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 (2.70...2.90)

Rack travel in mm : 10.50...10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 rhasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack 'gravel in mm: 4.0...4.2 Del.quantity cm3/: 3.2...3.8

100 s: (3.0...4.0)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

2nd speed rpm : 450

travel mm : 3.10...3.30

3rd speed rpm : 850

: 5.90...6.10 travel mm

4th speed rpm : 1000

travel mm : 7.50...7.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1130 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Aneroid pressure h: 900

Del.quantity : 233.0...235.0 1000 : (230.0...238.0)

Spread cm3 : 5.001000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 12.90 rpm : 950...960 Speed

2nd rack travel in: 4.00

rpm : 1075...1105 Speed

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 5.50 : 325 rpm

Rack travel in mm : 4.00...4.20

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 13.90...14.00

2nd speed rpm : 625

Rack travel in m: 14.10...14.20

3rd speed rpm : 800

Rack travel in m: 14.00...14.10

4th speed rpm : 500

Rack travel in m: 0.00...13.50

Aneroid/Altitude Compensator Test

1st version

Setting

: 625 Speed rpm Pressure hPa : 900

Rack travel mm : 14.10...14.20

Measurement

1/min : 625 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 275

Rack travel in m: 10.00...10.10

3rd pressure hPa : 570

Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 625 Speed

Del.quantity cm3/: 254.0...260.0 1000 s: (251.0...263.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400

Del.quantity cm3/: 136.0...140.0 1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than

All load rack tr: 12.90

Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0

1000 s: (130.0...190.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.00...4.20 Del.quantity cm3/: 32.0...38.0

1000 s: (30.0...40.0) cm3 : 8.00 Spread

1000 s: (12,00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : MAC 11_1 b2 Edition : 02.11.87

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 823

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design. : RQV325...875PA878-3K

Governer no. : 0 421 815 180

Customer-spec. information Customer : MACK

Engine : EM6-275L 4VH

1st version kW : 202.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm (2.70...2.90)

Rack travel in mm : 10.50...10.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 18.7...18.9

100 s: (18.4...19.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 3.7...4.3

100 s: (3.5...4.5)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.30...1.50

2nd speed rpm : 450

travel mm : 2.60...2.90

3rd speed rpm : 600

travel mm : 3.80...4.00

4th speed rpm : 850

travel mm : 6.50...6.70

5th speed rpm : 1000 travel mm : 8.70.

: 8.70...8.90

GUIDE SLEEVE POSITION Control-lever position

Degree: 65

rpm : 1030 Speed

Rack travel in mm : 8.00...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed Aneroid pressure h: 1200 Del.quantity 1000 : 187.0...189.0 : (184.0...192.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 54...62

Testing:

1st rack travel in: 11.20 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 985...1015 Speed 4th rack travel in: 1100

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 275 Minimum rack trave: 6.20 rpm : 325

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 875 1st speed

Rack travel in m: 12.20...12.30

2nd speed rpm : 510

Rack travel in m: 14.20...14.30 3rd speed rpm : 700

Rack travel in m: 13.20...13.30

4th speed rpm : 550

Rack travel in m: 0.00...14.30

Aneroid/Altitude Compensator Test

1st version

Setting

: 510 Speed rpm hPa : 1200 Pressure

Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 510

1st pressure hPa : -

Rack travel in m: 8.80...9.00

2nd pressure hPa : 330

Rack travel in m: 10.20...10.30

3rd pressure hPa : 685

Rack travel in m: 12.80...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 510 Speed

Del.quantity cm3/: 260.0...266.0 1000 s: (257.0...269.0)

cm3 : 8.00

Spread

1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 400

Del.quantity cm3/: 131.0...135.0 1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...180.0

1000 s: (130.0...190.0)

Rack travel in mm : 8.80...9.00

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 37.0...43.0 1000 s: (35.0...45.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : MAC 11,1 b3 Edition : 07.01.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 824

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design. : RQV325...875PA878-4K

Governer no. : 0 421 815 181

Customer-spec. information Customer : MACK

Engine : EM6-225L 4VH

1st version kW : 165.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. DC : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm

: (2.70...2.90)

Rack travel in mm : 10.50...10.50

Firing order : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 15.6...15.8

100 s: (15.3...16.1)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 3.8...4.4 100 s: (3.6...4.6)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

2nd speed rpm : 450

: 2.80...3.10 travel mm

3rd speed rpm : 850

: 6.20...6.40 travel mm

4th speed rpm : 1000

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1110 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 900

Del.quantity : 156.0...158.0 1000 : (153.0...161.0)

F08

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 10.00 Speed rpm : 925...935 2nd rack travel in: 4.00 rpm : 1015...1045 Speed 4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 275 Minimum rack trave: 6.10 rpm : 325

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 11.00...11.10

2nd speed rpm : 510 Rack travel in m: 13.20...13.40

3rd speed rpm : 600 Rack travel in m: 12.50...12.70

4th speed rpm : 700

Rack travel in m: 11.80...12.00

rpm : 350 5th speed

Rack travel in m: 0.00...13.20

Aneroid/Altitude Compensator Test

1st version Setting

: 510 Speed rpm Pressure hPa : 900

Rack travel mm : 13.20...13.40

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.90

2nd pressure hPa : 220

Rack travel in m: 9.70...9.80

3rd pressure hPa : 500

Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 510
Del.quantity cm3/ : 232.0...238.0
1000 s: (229.0...241.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 131.0...135.0

1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 135.0...175.0

1000 s: (125.0...185.0)

Rack travel in mm : 8.50...8.90

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 38.0...44.0

1000 s: (36.0...46.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

F09

Note remarks

Test sheet : MAC 11,1 b4 Edition : 07.01.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 826

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design.: RQV325...875PA878-6K

Governer no. : 0 421 815 183

Customer-spec. information Customer : MACK

: EM6-250L 4VH Engine

1st version kW : 186.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ^DC : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.50...10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 16.0...16.2

100 s: (15.7...16.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.5...4.7
Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7) cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

: 2.80...3.10 travel mm

3rd speed rpm: 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7,70,,,7,90

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del.quantity : 160.0...162.0 1000 : (157.0...165.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 9.80 rpm : 925...935 Speed 2nd rack travel in: 4.00

Speed rpm : 1010...1040

4th rack travel in: 1100

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 275 Minimum rack trave: 1.50 rpm : 325

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 875 1st speed

Rack travel in m: 10.80...10.90

2nd speed rpm : 510

Rack travel in m: 13.00...13.20

3rd speed rpm : 600

Rack travel in m: 12.40...12.60

4th speed rpm : 700

Rack travel in m: 11.70...11.90 5th speed rpm : 550

Rack travel in m: 0.00...13.10

Aneroid/Altitude Compensator Test

1st version Setting

pm : 510 hPa : 1200 Speed rpm Pressure

Rack travel mm : 13.00...13.20

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 9.20...9.40

2nd pressure hPa : 215

Rack travel in m: 10.30...10.40

3rd pressure hPa : 435

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 510 Speed

Del.quantity cm3/: 237.0...243.0

1000 s: (234.0...246.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 146.0...150.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 925...935

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 165.0...205.0

1000 s: (155.0...215.0)

Rack travel in mm : 9.20...9.40

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.50...10.50 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Firing order : 1-5-3-6-2-4 Test sheet : MAC 11,1 a7 Edition : 07.01.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 402 746 829 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325..1050PA848-8K Governer no. : 0 421 815 185 rpm: 1050 1st speed Rack travel in mm : 12.20...12.30 Customer-spec. information Del.quantity cm3/: 17.4...17.6 Customer : MACK : E6-270 4VH 100 s: (17.1...17.9) Engine 1st version kW : 201.0 Spread cm3 : 0.5Rated speed : 2100 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Test oil Rack 'mavel in mm : 4.8...5.0 inlet temp. OC : 38...42 Del.quantity cm3/: 3.8...4.4 100 s: (3.6...4.6) cm3 : 0.8 Overflow valve Spread : 2 417 413 011 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 101 GUIDE SLEEVE TRAVEL 1st speed rpm : 325 Opening. travel mm : 1.40...1.60 rpm : 450 : 207...210 pressure, bar 2nd speed : 2.50...2.80 travel mm Orifice plate 3rd speed rpm : 800 diameter mm : 0.6 : 4.80...5.00 travel mm 4th speed rpm : 1050 : 7.30...7.60 travel mm Test lines : 1 680 750 014 5th speed rpm : 1200 travel mm : 9.40...9.60 Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X2.00X600 x Length mm Control-lever position Degree: -1 rpm : 1210 (A) Injection pump setting values Insp. values in parentheses Rack travel in mm : 7.00...13.00 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values ____ BEGINNING OF DELIVERY 1st version Test pressure, bar: 17...19 rpm : 1050 Speed

Aneroid pressure h: 900

Del.quantity : 174.0...176.0 1000 : (171.0...179.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever

position degrees: 55...63

Testing:
1st rack travel in: 11.20
Speed rpm: 1090...1100
2nd rack travel in: 4.00
Speed rpm: 1170...1200
4th rack travel in: 1300
Speed rpm: 0.00...1.00

LOW IDLE 1 Control lever position degrees: 10...18

Testing:
Speed rpm : 275
Minimum rack trave: 1.50
Speed rpm : 325
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 325...600

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.20...12.30
2nd speed rpm : 630
Rack travel in m: 12.00...12.10
3rd speed rpm : 925
Rack travel in m: 11.90...12.10

4th speed rpm : 800
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm : 630 Pressure hPa : 900 Pack travel mm : 12 (

Rack travel mm : 12.00...12.10

Measurement Speed 1/min: 630

1st pressure hPa : Rack travel in m: 8.80...9.00
2nd pressure hPa : 270

Rack travel in m: 9.60...9.70

3rd pressure hPa : 400

Rack travel in m: 11.00...11.50

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 630

Speed rpm : 630 Del.quantity cm3/ : 188.0...194.0 1000 s: (185.0...197.0)

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 400

Del.quantity cm3/: 129.0...133.0 1000 s: (127.0...135.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del.quaritity cm3/ : 38.0...44.0
1000 s: (36.0...46.0)

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : MB 11,7 f 1 : 07.03.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 830

Injection pump

Pump designation : PES6P120A720LS7107

EP type number : 0 412 726 801

Governor

Governor design. : RGV350..1100PA886 Governer no. : 0 421 813 691

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M447ha Engine

1st version kW : 206.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

; 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm : 1080 1st speed

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm : 5.2...5.5 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 2.20...2.40 travel mm

rpm : 580 2nd speed

: 3.80...4.20 travel mm

3rd speed rpm : 1150

travel mm : 8.00...8.50

4th speed rpm : 1230

: 9.20...9.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1160

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1080

Aneroid pressure h: 750

: 197.0...199.0 Del.quantity

1000 : (194.0...202.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 60...68

Testino:

1st rack travel in: 12.40

Speed rpm : 1120...1130

2nd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

Speed : 250 грт Minimum rack trave: 7.50 : 350 Speed rpm

Rack travel in mm : 5.20...5.50

CONSTANT REGULATION

Speed rpm : 350...550

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm Pressure hPa : -

Rack travel mm : 10.70...11.00

Measurement

1/min: 500 Speed

1st pressure hPa : 230

Rack travel in m: 11.00...11.20

2nd pressure hPa : 370

Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750

F15

Speed rpm : 600 Del.quantity cm3/ : 196.0...200.0 1000 s: (193.0...203.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 144.0...146.0

1000 s: (141.0...149.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 1120...1130 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 150.0...170.0

1000 s: (146.0...174.0)

Remarks:

Note remarks

Test sheet : MAC 11,1 a8 Edition : 06.04.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 832

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governor design. : RQV325...900PA848-10

Governer no. : 0 421 815 189

Customer-spec. information Customer

Engine : EM6 275 2VH

1st version kW : 202.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nuzzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm 6ر0 :

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.30...10.70

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 18.7...18.9

100 s: (18.4...19.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.6...4.8 Del.quantity cm3/ : 3.7...4.3

100 s: (3.5...4.5) cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 3.10...3.30

3rd speed rpm : 850

: 5.90...6.10 travel mm

4th speed rpm : 1000

travel mm : 7.50...7.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1120 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 900

: 187.0...189.0 Del.quantity 1000 : (184.0...192.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 51...59 Testing: 1st rack travel in: 11.30 rpm : 950...960 Speed 2nd rack travel in: 4.00 rpm : 1055...1085 Speed 4th rack travel in: 1150 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 9...17 Testing: Speed rpm : 275 Minimum rack trave: 6.10 Speed rpm: 325 Rack travel in mm : 4.60...4.80 CONSTANT REGULATION rpm : 325...480 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 12.30...12.40

2nd speed rpm : 540
Rack travel in m: 13.50...13.70
3rd speed rpm : 700 Rack travel in m: 12.70...12.90 4th speed rpm : 450 Rack travel in m: 0.00...13.30

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm : 540 Pressure hPa : 900 Rack travel mm : 13.50...13.60

Measurement Speed 1/min : 540 1st pressure hPa : -Rack travel in m: 9.10...9.20 2nd pressure hPa : 320 Rack travel in m: 10.20...10.30 3rd pressure hPa : 550 Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 540 Del.quantity cm3/: 235.0...241.0 1000 s: (232.0...244.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 142.0...146.0 1000 s: (140.0...148.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 rpm : 950...960 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 150.0...190.0 1000 s: (140.0...200.0) Rack travel in mm : 9.10...9.30

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 37.0...43.0 1000 s: (35.0...45.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm

F17

Note remarks

: MAC 11,1 a9 Test sheet : 07.03.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 833

Injection pump

Pump designation : PES6P120A720RS7135

: 0 412 726 807 EP type number

Governor

Governor design. : RQV325...975PA848-11

: 0 421 815 190 Governer no.

Customer-spec. information Customer

: E6-350 2VH Engine

1st version kW : 257.0 : 1950 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.30...10.70 Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 975 1st speed

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.5...4.7 Del.quantity cm3/ : 3.8...4.4 100 s: (3.6...4.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60

2nd speed rpm : 450

travel mm : 2.50...2.80

rpm : 800 3rd speed

travel mm : 4.80...5.00

rpm : 1050 4th speed

: 7.30...7.60 travel mm

rpm : 1200 5th speed

: 9.40...9.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1190 Rack travel in mm: 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

F18

Aneroid pressure h: 900 Del.quantity : 234.0...239.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 55...63 Testing: 1st rack travel in: 13.10 rpm : 1015...1025 Speed 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm Minimum rack trave: 6.00 rpm : 325 Speed Rack travel in mm : 4.50...4.70 CONSTANT REGULATION rpm : 325...600 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 975 Rack travel in m: 14.10...14.20 2nd speed rpm : 700 Rack travel in m: 13.80...13.90 3rd speed rpm : 600 Rack travel in m: 0.00...13.30 Aneroid/Altitude Compensator Test 1st version Setting rpm : 700 Speed Pressure hPa : 900 Rack travel mm : 13.80...13.90 Measurement 1/min: 700 Speed

Rack travel in m: 7.80...8.00 Rack travel in m: 9.30...9.40

Rack travel in m: 12.20...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 700 Speed Del.quantity cm3/: 230.0...236.0 1000 s: (227.0...239.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.10 rpm : 1015...1025 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 110.0...150.0 1000 s: (100.0...160.0) Rack travel in mm : 7.80...8.00 LOW IDLE Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm3/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm3 : 8.00 1000 s: (12.00) Remarks: Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm

1st pressure hPa : -

2nd pressure hPa : 240

3rd pressure hPa : 510

Note remarks

: MB 12,0 a 2 : 15.08.89 : 29.3.89 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 746 841

Injection pump

Pump designation : PES6P120A720LS7114-2

EP type number : 0 412 726 815

Governor

Governor design. : RQ300/1050PA774-3 Governor no. : 0 421 801 451

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M447 LA Engine

1st version kW : 265.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press. bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 967

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5

Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.8...6.2 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900

Del.quantity : 229.0...231.0 1000 : (226.0...234.0) Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

Testing: 1st rack travel in: 13.20 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 6.0 Speed : 300 rpm Rack travel in mm : 5.80...6.20 Rack travel in mm : 2.00 Speed rpm : 360...400 TORQUE CONTROL Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.20...14.40 3rd speed rpm : 700 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man Pressure hPa : 700 Rack travel mm : 14.00...14.20 Measurement 1/min: 600 Speed 1st pressure hPa : 300 2nd pressure hPa : 500 Rack travel in m: 13.40...13.60
3rd pressure hPa : 1100
Rack travel in m: 14.20...14.40 4th pressure hPa : 1200 Rack travel in m: 14.50...14.70 5th pressure hPa : -Rack travel in m: 10.40...10.70

Rack travel in m: 14.70...14.90 Rack travel in m: 11.80...12.00 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 1050

Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...341.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm : 700 Del.quantity cm3/ : 246.0...249.0 1000 s: (243.0...252.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.20 rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

Note remarks

Test sheet : MB 12,0 a 3 Edition : 25.08.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 854

Injection pump

Pump designation : PES6P120A720LS7114-3

EP type number : 0 412 726 820

Governor

Governor design. : RQ300/1050PA911 Governer no. : 0 421 801 476

Customer-spec. information

Customer : DBAIMLER-BENZ

: 0M447 LA Engine

1st version kW : 257.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. 9C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0.8 diameter mm

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{0}$: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5 Spread

------100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2 Del.quentity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm: 600 Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 229.0...231.0 1000 : (226.0...234.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0 Testing:

1st rack travel in: 12.70

Speed rpm : 1095...1110

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 6.0

: 300 Speed rpm

Rack travel in mm : 5.80...6.20

Rack travel in mm : 2.00

Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm

2nd speed rpm : 1050

Rack travel in m: 13.60...13.80

3rd speed rpm : 700

Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 800 Pressure

Rack travel mm : 13.60...13.80

Measurement

1/min: 600 Speed

1st pressure hPa : 300

Rack travel in m: 11.20...11.40

2nd pressure hPa : 600

Rack travel in m: 13.10...13.30 3rd pressure hPa : 1000 Rack travel in m: 13.70...13.80

4th pressure hPa : 1100

Rack travel in m: 13.90...14.10

5th pressure hPa : -

Rack travel in m: 10.20...10.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 1050 Del.quantity cm3/: 229.0...233.0

1000 s: (226.0...236.0)

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: 1500 Speed : 800 rpm

Del.quantity cm3/: 244.0...247.0

1000 s: (241.0...250.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 146.0...148.0

1000 s: (143.0...151.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with

respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 12,0 e : 15.08.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 855

Injection pump

Pump designation : PES6P120A720LS7176

EP type number : 0 412 726 821

Governor

Governor design. ; RQ300/1050PA897 Governer no. : 0 421 801 452

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447 A

1st version kW : 213.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm: 14.10...14.30

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.8...6.2
Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.6 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 650 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 680

Del.quantity : 201.0...203.0 1000 : (198.0...206.0)

cm3 : 5.00 1000 : (9.00)

RATED SPEED

Spread

1st version

Setting point:

rpm : 650 Speed Rack travel in mm: 20.0 Testina:

1st rack travel in: 12.60

rom: 1095...1110 Speed

2nd rack travel in: 4.00

rpm : 1160...1190 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.9

Testing:

rpm : 200 Speed Minimum rack trave: 7.50

Speed rpm : 300

Rack travel in mm : 5.80...6.00

Rack travel in mm : 2.00

rpm : 380...420 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm Pressure hPa : 680

: 14,10,..14,30 Rack travel mm

Measurement

1/min : 600 Speed

1st pressure hPa : 300

Rack travel in m: 12.30...12.50

2nd pressure hPa : 400

Rack travel in m: 13.20...13.40

3rd pressure hPa : 800

Rack travel in m: 14.20...14.30

4th pressure hPa : -

Rack travel in m: 11.50...11.80

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 1050 Speed rpm

Del.quantity cm3/: 193.0...195.0

1000 s: (190.0...198.0) cm3 : 8.00

Spread

1000 s: (12.0) Aneroid pressure h: 1200

rpm : 750 Speed

F25

Del.quantity cm3/: 218.0...222.0

1000 s: (215.0...225.0)

cm3 : 8.00Spread

1000 s: (12.0)

Anéroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 144.0...146.0

1050 s: (141.0...149.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,60

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

Remarks:

* Increase in control-rod travel with

respect to setting at least 0.1 mm

Note remarks

: SSC 10,5 f Test sheet : 16.06.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 856

Injection pump

Pump designation : PES6P130A320LS7173

EP type number : 0 412 736 802

Governor

Governor design. : RQV300...750PA914 Governor no. : 0 421 813 747

Customer-spec. information Customer : SSCM

Engine : UD25-L6

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 443 022

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 060

Outside diameter x Wall thickness

: 8.00x2.00x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 48.0...48.3

100 s: (47.6...48.6)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 300.0 2nd speed Rack travel in mm: 4.7...5.3 Del.quantity cm3/: 4.7...5.3

100 s: (4.3...5.7)

Spread cm3 : 1.0 100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.10...1.30

2nd speed rpm : 600

travel mm : 5.10...5.70

rpm : 750 3rd speed

travel mm : 7.70...7.90

rpm : 1000 4th speed

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

: 480.0...483.0 Del.quantity

1000 : (476.5...486.5)

cm3 : 6.00 Spread

1000 : (10.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 11.30 Speed rpm: 790...800 2nd rack travel in: 4.00

Speed rpm : 840...870

LOW IDLE 1

Control lever

position degrees: 43...51 Speed rpm: 300 Rack travel in mm: 4.90...5.10

CONSTANT REGULATION

Speed rpm : 315...445

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

Speed rpm : 790...800

INTERMEDIATE RATED SPEED

Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm: 100

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : 0-60-120-180-240-300 Test sheet : FIA 9,5 a 1 Phasing Edition : 28.06.89 Replaces Tolerance + - 0 : 0.50 (0.75) : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 0 402 746 857 BASIC SETTING Injection pump Pump designation : PES6P120A720RS7177 1st speed rpm : 1100 EP type number : 0 412 726 823 Rack travel in mm : 12.30...12.40 Governor Governor design. : RQ275/1100PA915 Governer no. : 0 421 801 478 Del.quantity cm3/: 18.8...19.0 100 s: (18.5...19.3) Customer-spec. information Customer : IVECO-FIAT Spread cm3 : 0.5 : 8460.41.601 Engine 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 275.0 2nd speed Rack travel in mm: 5.7...5.9 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Overflow valve **Spread** cm3 : 0.8 : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 assembly : 1 688 901 019 rpm : 600 Rack travel in mm : 19.20...20.80 Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 Orifice plate 1st version diameter mm : 0,8 rpm : 1100 Speed Aneroid pressure h: 900 Del.quantity : 188.0...190.0 1000 : (185.0...193.0) Test lines : 1 680 750 075 cm3 : 5.00 Spread 1000 : (9.00) Outside diameter x Wall thickness : 8.00x2.50x1000 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values Speed rpm : 600

Rack travel in mm: 20.0

Testing:

1st rack travel in: 11.30

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

F28

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 5.00...5.10

: (4.95...5.15)

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm : 5.8

Testing:

Speed rpm : 100 Minimum rack trave: 7.30 rpm : 275

Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm :-

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.60...12.70

2nd speed rpm : 600

Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 900 Pressure

Rack travel mm : 12.30...12.40

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.70...9.80
2nd pressure hPa : 320
Rack travel in m: 11.30...11.40

3rd pressure hPa : 270

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 123.0...125.0

1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm: 100

Remarks:

APPLICATION

0mnibus

Note remarks

Test sheet : MB 12,0 f : 18.08.89 Edition

Replaces Test oil

: ISO-4113

Combination no. : 0 402 746 858

Injection pump

Pump designation : PES6P120A720LS7181

EP type number : 0 412 726 824

Governor

Governor design. : RQ300/1050PA911-1

Governer no. : 0 421 801 481

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M447 LA Engine

1st version kW : 294.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Lube oil : â

Test lines : 1 680 7S0 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15) Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 27.4...27.6

100 s: (27.1...27.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.8...6.2

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 274.0...276.0 1000 : (271.0...279.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.90

rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack Fravel in: 1300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0 Speed rpm : 300

Rack travel in mm : 5.80...6.20

Rack travel in mm : 2.00

: 360...400 Speed Low

TORQUE CONTROL

Dimension a mm : 0.50 2nd speed rpm : 1050

Rack travel in m: 14.90...15.10

3rd speed rpm : 850

Rack travel in m: 15.60...15.80

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 600 Speed hPa : 1000 Pressure

Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300

Rack travel in m: 10.90...11.10

2nd pressure hPa : 700

Rack travel in m: 14.00...14.20

3rd pressure hPa : 1300

Rack travel in m: 15.40...15.60

4th pressure hPa : 1450

Rack travel in m: 15.90...16.10

5th pressure hPa : -

Rack travel in m: 10.00...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 1050 Del.quantity cm3/ : 269.0...272.0

1000 s: (266.0...275.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: 1600 Speed : 700 rpm

Del.quantity cm3/: 298.0...301.0

1000 s: (295.0...304.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 143.0...145.0

1000 s: (140.0...148.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 250.0...270.0

1000 s: (246.0...274.0)

Remarks:

Note remarks

Test sheet : MB 12,0 a 4 Edition : 16.06.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 859

Injection pump

Pump designation : PES6P120A720LS7114-2

EP type number : 0 412 726 815

Governor

Governor design. : RQV300..1050PA797-10

Governer no. : 0 421 813 758

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447 LA

1st version kW : 265.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.8...6.2 Del.quentity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.10...1.30 travel mm

2nd speed rpm : 600

: 4.90...5.10 travel mm

3rd speed rpm : 800

travel mm : 5.90...6.20

4th speed rpm : 1100

travel mm : 8.10...8.50

5th speed rpm : 1175

: 9.70...10.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 900 Del.quantity : 229.0...231.0 1000 : (226.0...234.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 13.20 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1250 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 16...24 Testing: : 200 Speed Cbw Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 5.80...6.20 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL : 0.50 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.20...14.40 3rd speed rpm : 700 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting Speed Lbw : 600 Pressure hPa : 700 Rack travel mm : 14.00...14.20 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.80...12.00 2nd pressure hPa : 500 Rack travel in m: 13.40...13.60 3rd pressure hPa : 1100

Rack travel in m: 14.20...14.40 4th pressure hPa : 1200 Rack travel in m: 14.50...14.70 5th pressure hPa : -Rack travel in m: 10.40...10.70 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1050 Speed Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...341.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 rpm : 700 Speed Del.quantity cm3/: 246.0...249.0 1000 s: (243.0...252.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 146.0...148.0 1000 s: (143.0...151.0)

BREAKAWAY

Spread

1st version 1mm rack travel less than

full load rack tr: 13.20

Speed rpm : 1090...1100

cm3 : 8.00

1000 s: (12.0)

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

Note remarks

Test sheet : MB 12.0 d 2 Edition : 16.06.89

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 746 860

Injection pump

Pump designation : PES6P120A720LS7161

EP type number : 0 412 726 817

Governor

Governor design. : RQV300..1050PA797-11

Governer no. : 0 421 813 759

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447 A

1st version kW : 213.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ$: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.8...6.2
Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.6 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.30

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 800

travel mm : 5.90...6.20

4th speed rpm : 1100

travel mm : 8.10...8.50

5th speed rpm : 1175

travel mm : 9.70...10.20

GUIDE SLEEVE POSITION
Control-lever position

Control-lever position
Degree: -1

Speed rpm: 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 680 : 201.0...203.0 1000 : (198.0...206.0) Del.quantity cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 12.60 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Testing: rpm : 200 Speed Minimum rack trave: 8.00 Speed rpm: 300 Rack travel in mm : 5.80...6.00 CONSTANT REGULATION

rpm : 300...450 Speed

TORQUE CONTROL Dimension a mm : 1.20 2nd speed rpm : 1050

Rack travel in m: 13.60...13.80

3rd speed rpm : 750

Rack travel in m: 14.80...15.00

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 600 Speed Pressure hPa : 680

Rack travel mm : 14.10...14.30

Measurement

Speed 1/min: 600

1st pressure hPa : 300

Rack travel in m: 12.30...12.50

2nd pressure hPa : 400

Rack travel in m: 13.20...13.40

3rd pressure hPa : 800

Rack travel in m: 14.20...14.30 *

4th pressure hPa :

Rack travel in m: 11.50...11.80

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 1050 Speed

Del.quantity cm3/: 193.0...195.0

1000 s: (190.0...198.0) cm3 : 8.00

Spread 1000 s: (12.0) Aneroid pressure h: 1200

: 750 Speed rpm Del.quantity cm3/: 218.0...222.0

1000 s: (215.0...225.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0)

cm3 : 8.00

Spread 1000 s: (12.0)

BREAKAVAY

1st version 1mm rack travel less than

full load rack tr: 12.60

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 150.0...170.0

1000 s: (146.0...174.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MAC 16,0 a Edition : 01.09.89 Replaces : 17.2.89 Test oil : ISO-4113

Combination no. : 0 402 748 802

Injection pump

Pump designation : PES8P120A920/4LS7159

EP type number : 0 412 728 801

Governor

: RQV325..1050PA848-21 Governor design.

: 0 421 815 201 Governer no.

Customer-spec. information : MACK Customer

: EE9 502 Engine

1st version kW : 368.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 2 417 413 011

Over flow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

G08

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65

: (3.50...3.70)

Rack travel in mm : 9.00...12.00

: 1- 2- 7- 8- 4- 5- 6-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 630

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 20.7...20.9

100 s: (20.4...21.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.30...1.60 travel mm

rpm : 450 2nd speed

: 2.30...2.70 travel mm

rpm : 800 3rd speed

: 4.40...4.80 travel mm

: 1050 4th speed rpm

: 6.90...7.10 travel mm

rpm : 1200 5th speed

: 8.90...9.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1220

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 630 Aneroid pressure h: 1200 Del.quantity : 207.0...212.0) 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 57...65 Testing: 1st rack travel in: 12.10 Speed rpm : 1095...1105 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 9...17 Testing: Speed rpm : 275 Minimum rack trave: 6.30 Speed rpm : 325 Rack travel in mm: 4.80...5.00 CONSTANT REGULATION rpm : 325...600 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 630 Rack travel in m: 11.90...12.00 2nd speed rpm : 1050 Rack travel in m: 13.10...13.30 3rd speed rpm : 500 Rack travel in m: 0.00...11.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 1050 hPa : 1200 Pressure Rack travel mm : 13.10...13.20 Measurement

1/min : 1050

Rack travel in m: 8.40...8.80

1st pressure hPa : -

2nd pressure hPa : 345

Speed

G09

Rack travel in m: 9.90...10.00 3rd pressure hPa : 725 Rack travel in m: 12.00...12.40 START CUT-OUT Speed 1/min: 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/ : 202.0...208.0 1000 s: (199.0...211.0) cm3 : 10.00 Spread 1000 s: (14.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.10 Speed rpm : 1095...1105 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...180.0 1000 s: (130.0...190.0) Rack travel in mm : 9.30...9.70 LOW IDLE Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 40.0...46.0 1000 s: (38.0...48.0) Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

Note remarks

Test sheet Edition : MB 12,0 c : 09.06.89 : 7.2.89 : ISO-4113 Replaces Test oil

Combination no. : 0 402 776 805

Injection pump

Pump designation : PES6P120A720LS7155 EP type number : 0 412 726 812

Governor

Governor design.: RSV350..1050POA529-1

Governer no. : 0 421 833 295

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447 LA

1st version kW : 265.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 9.90...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm: 350.0
Rack travel in mm: 4.5...4.8
Del.quentity cm3/: 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 1400

Del.quantity : 240.0...242.0 1000 : (237.0...245.0)

cm3 : 5.00

1000 : (9.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 12.40

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 4.6

Speed rpm: 350

Rack travel in mm : 4.50...4.80

SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 13.40...13.50

2nd speed rpm : 825

Rack travel in m: 14.10...14.30

3rd speed rpm : 950

Rack travel in m: 13.60...13.80

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 600 Speed hPa : 650 Pressure

Rack travel mm : 13.00...13.20

Measurement

1/min : 600 Speed

1st pressure hPa : 350

Rack travel in m: 10.70...10.90

2nd pressure hPa : 400

Rack travel in m: 11.40...11.60

3rd pressure hPa : 850

Rack travel in m: 13.20...13.40

4th pressure hPa : 950

Rack travel in m: 13.70...13.90

5th pressure hPa : -

Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 650 Speed rpm : 600

Del.quantity cm3/: 234.0...237.0 1000 s: (231.0...240.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: 1400

Speed rpm: 825
Del.quantity cm3/: 263.0...266.0
1000 s: (260.0...269.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 151.0...154.0 1000 s: (148.0...157.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.05...3.15 Prestroke mm : (3.00...3.20) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : CUM 8,3 D 2 : 20.05.88 Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 403 436 103 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 BASIC SETTING Governor Governor design.: RQV350...1100MW82 1st speed rpm : 1100 Governer no. : 0 420 083 130 Rack travel in mm : 12.70...12.80 Customer-spec. information Customer : CUMMINS/US Del.quantity cm3/: 15.0...15.2 : 6 CTA-830 100 s: (14.8...15.4) Engine 1st version kW : 186.0 Spread cm3 : 0.3Rated speed : 2200 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 7.2...7.3 Test oil inlet temp. °C Del.quantity cm3/: 1.6...2.0 : 38...42 100 s: (1.4...2.2) Overflow valve Spread cm3 : 0.3: 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 1240 : 8.80...9.20 Opening travel mm pressure, bar : 207...210 2nd speed rpm : 1140 : 7.80...8.00 travel mm rpm : 700 Orifice plate 3rd speed diameter mm : 0.6 : 3.80...4.40 travel mm rpm : 350 4th speed travel mm : 1.20...1.60 : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

RATED SPEED

Speed

rpm : 1100

Del.quantity : 150.0...152.0 1000 : (148.0...154.0) Spread cm3 : 3.50

1000 : (6.00)

Aneroid pressure h: 900

1st version

position degrees: 44...52

Testina:

1st rack travel in: 11.70

Speed rpm : 1150...1160

2nd rack travel in: 4.00

Speed rpm: 1240...1270 4th rack travel in: 1330

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.2

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00 : 350 rpm

Rack travel in mm : 7.20...7.30

CONSTANT REGULATION

rpm : 360...500 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.70...12.80

2nd speed rpm : 700

Rack travel in m: 13.40...13.50

3rd speed rpm : 900

Rack travel in m: 12.90...13.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : -

Rack travel mm : 9.90...10.10

Measurement

1/min : 500 Speed

1st pressure hPa : 300

Rack travel in m: 10.80...10.90

2nd pressure hPa : 520

Rack travel in m: 12.20...12.50

3rd pressure hPa : 900

Rack travel in m: 13.60...13.70

START CUT-OUT

1/min : 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 700 Speed

Del.quantity cm3/: 159.0...161.0 1000 s: (157.0...163.0) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 88.0...90.0

1000 s: (86.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 205.0...225.0

1000 s: (202.0...228.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7.20...7.30 Del.quantity cm3/: 16.0...20.0

1000 s: (14.0...22.0) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 3- 4- 2 Note remarks : MB 4,0 A 14 Test sheet Phasing : 0-90-180-270 Edition : 19.05.88 : 25.08.87 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 110 1st speed rpm: 1300 Injection pump Pump designation : PES4MW100/720RS1127 Rack travel in mm : 11.10...11.20 EP type number : 0 413 404 103 Del.quantity cm3/: 8.0...8.2 Governor Governor design. : RQV300...1300MW48-1 100 s: (7.8...8.4) Governer no. : 0 420 083 084 Customer-spec. information Spread cm3 : 0.3Customer : DB 100 s: (0.6) : OM 364 A Engine 2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 1st version kW : 85.0 Rated speed : 2600 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.50...9.90 Inlet press., bar: 1.50 travel mm rpm : 1350 2nd speed : 8.50...8.70 Test nozzle holder travel mm assembly : 0 681 343 009 3rd speed rpm : 450 travel mm : 2.40...3.00 rpm : 300 Opening. 4th speed pressure, bar : 172...175 : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 Outside diameter rpm : 1330 Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1300 Speed : 80.0...82.0 1000 : (78.0...84.0) per values Del.quantity cm3 : 3.50

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 9.00...12.00

RATED SPEED

1000 : (6.00)

Spread

1st version

position degrees: 50...58

Testing:

1st rack travel in: 10.10

Speed rpm : 1340...1350

2nd rack travel in: 4.00

rpm : 1430...1460 Speed

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.8

Testing:

Speed rpm : 100

Minimum rack trave: 9.50

rpm : 300

Rack travel in mm: 7.80...7.90

CONSTANT REGULATION

rpm : 330...600 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 11.90...12.10

rpm : 585 3rd speed

Rack travel in m: 12.10...12.30

4th speed rpm : 1000

Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0)

Spread cm3: 5.00 1000 s: (7.0) Speed rpm: 585 Del.quantity cm3/: 71.5...74.5 1000 s: (69.0...77.0)

RACK STOP ADJUSTMENT

Speed rpm : 100 **BREAKAWAY**

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

Spread cm3 : 3.50

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 3- 4- 2 Note remarks Test sheet : MB 4.0 A 19 Phasing : 0-90-180-270 Edition : 13.06.88 Tolerance + - 0 Replaces : 25.08.87 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 112 1st speed rpm: 1300 Injection pump Pump designation : PES4MW100/720RS1127 Rack travel in mm : 11.10...11.20 EP type number : 0 413 404 103 Del.quantity cm3/: 8.0...8.2 Governor Governor design. : RQV300...1300MW48-2 Governer no. : 0 420 083 110 100 s: (7.8...8.4) Customer-spec. information Spread cm3 : 0.3 Customer : DB 100 s: (0.6) Engine : 0M 364 A 2nd speed rpm: 300.0 Rack travel in mm: 7.8...7.9 Del.quantity cm3/: 0.9...1.3 1st version kW : 85.0 Rated speed : 2600 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm: 1450 : 9.50...9.90 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1350 Test nozzle holder : 8.50...8.70 travel mm assembly : 0 681 343 009 3rd speed rpm : 450 : 2.40...3.00 travel mm Opening. 4th speed rpm : 300 pressure, bar : 1.20...1.60 : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 Outside diameter Speed rpm : 1330 x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1300 Set equal delivery quant. Speed Del.quantity : 80.0...82.0 1000 : (78.0...84.0) per values : 3.50 BEGINNING OF DELIVERY cm3 Spread 1000 : (6.00) Test pressure, bar: 30...32 Prestroke mm : 3.70...3.80 RATED SPEED : (3.65...3.85)

1st version

616

Rack travel in mm : 9.00...12.00

position degrees: 50...58

Testing:

1st rack travel in: 10.10

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

rpm : 1430...1460 Speed

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.8

Testing:

Speed rpm : 100 Minimum rack trave: 9.50

rpm : 300

Rack travel in mm : 7.80...7.90

CONSTANT REGULATION

rpm : 330...600 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 11.80...12.10

rpm : 585 3rd speed

Rack travel in m: 12.10...12.30

4th speed rpm : 1000

Rack travel in m: 11.10...11.30

START CUT-OUT

1/min : 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0)

cm3 : 5.00 Spread

1000 s: (7.0) Speed rpm : 585 Del.quantity cm3/ : 71.5...74.5 1000 s: (69.0...77.0)

RACK STOP ADJUSTMENT

rpm : 100 Speed

G17

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 7.80...7.90

Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50Spread

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-3-4-2 Note remarks Test sheet : MB 4.0 A 25 Phasing : 0-90-180-270 Edition : 08.06.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 115 1st speed rpm : 1200 Injection pump Pump designation : PES4MW100/720RS1127 Rack travel in mm : 11.00...11.10 EP type number : 0 413 404 103 Governor Del.quantity cm3/: 7.5...7.7 Governor design. : RQV300...1200MW48-6 : 0 420 083 157 100 s: (7.3...7.9) Governer no. Customer-spec. information Spread cm3 : 0.3Customer : DB 100 s: (0.6) Engine : 0M364A 2nd speed rpm : 300.0 1st version kW : 77.0 Rack travel in mm: 8.2...8.4 Del.quantity cm3/: 1.0...1.4 Rated speed : 2400 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1325 : 9.40...9.80 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1250 Test nozzle holder travel mm : 8.60...8.80 : 0 681 343 009 rpm : 550 assemb!y 3rd speed : 3.00...3.60 travel mm rpm : 300 Opening 4th speed : 172...175 pressure, bar : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1250 Outside diameter x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x1.50x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1200 Speed per values ____ : 75.0...77.0 Deliquantity 1000 : (73.0...79.0) cm3 : 3.50 BEGINNING OF DELIVERY Spread Test pressure, bar: 30...32 1000 : (6.00) : 3.70...3.80 Prestroke mm RATED SPEED : (3.65...3.85)

1st version

G18

Rack travel in mm : 9.00...12.00

position degrees: 48...56

Testing:

1st rack travel in: 10.00

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1310...1340 4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

гр**м** : 300 Rack travel in mm: 8.3

Testing:

rpm : 100 Speed

Minimum rack trave: 9.70 Speed rpm : 300

Rack travel in mm : 8.20...8.40

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 11.00...11.10

2nd speed rpm : 600

Rack travel in m: 12.00...12.20

3rd speed rpm : 800

Rack travel in m: 11.60...11.80

4th speed rpm : 900

Rack travel in m: 11.20...11.40

START CUT-OUT

1/min : 200 (230) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Speed rpm: 600
Del.quantity cm3/: 65.0...68.0
1000 s: (62.5...70.5)
Spread cm3: 5.00
1000 s: (7.0)
Speed rpm: 800
Del.quantity cm3/: 70.0...73.0
1000 s: (67.5...75.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1240...1250

G19

STARTING FUEL DELIVERY

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 8.20...8.40 Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5) cm3 : 3.50

Spread

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : VOL 6,0 G Test sheet Phasing : 0-60-120-180-240-300 Edition Edition Replaces : 15.08.89 : 12.85 Tolerance + - 0 : 0.50 (0.75) : ISO-4113 BASIC SETTING Combination no. : 0 403 446 104 1st speed rpm: 1000 Injection pump Pump designation : PES6MW100/320RS1004 Rack travel in mm : 11.00...11.10 EP type number : 0 413 406 003 Del.quantity cm3/: 8.5...8.7 Governor Governor design. : RQV300...1400MW6R Governer no. : 0 420 083 002 100 s: (8.3...8.9) Customer-spec. information Spread cm3 : 0.3 Customer : VOLVO-TRUCK 100 s: (0.6) : TD 608 Engine 2nd speed rpm : 300.0
Rack travel in mm : 5.2...5.4
Del.quantity cm3/ : 0.9...1.3 1st version kW : 132.0 : 2800 Rated speed 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS cm3 : 9.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -1 : 1 457 413 010 rpm : 1400 Speed Rack travel in mm : 15.20...17.80 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder assembly : 0 681 343 009 1st version Speed rpm : 1000 Opening Aneroid pressure h: 670 pressure, bar : 173...176 Del.quantity : 85.0...87.0 1000 : (83.0...89.0) cm3 : 3.50 Spread Test lines : 1 680 750 014 1000 : (6.00) Outside diameter RATED SPEED x Wall thickness : 6.00x2.00x600 x Length mm 1st version Control lever (A) Injection pump setting values position degrees: 60...68 Insp. values in parentheses Set equal delivery quant. Testing: per values 1st rack travel in: 10.00 Speed rpm : 1440...1450 BEGINNING OF DELIVERY 2nd rack travel in: 4.00 Speed rpm : 1550...1580 4th rack travel in: 1700

Speed rpm : 0.00...1.00

LOW IDLE 1

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00

G20

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300° Rack travel in mm: 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 7.00 rpm : 300

Rack travel in mm : 5.20...5.40

Rack travel in mm : 2.00

Speed rpm : 420...480

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 210 Pressure

Rack travel mm : 9.70...9.80

Measurement

Speed 1/min: 500

1st pressure hPa : 670

Rack travel in m: 11.00...11.10

2nd pressure hPa : -

Rack travel in m: 9.30...9.40

3rd pressure hPa : 270

Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 670 Speed rpm : 1400

Del.quantity cm3/: 86.5...90.5

1000 s: (84.5...92.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 9.5...13.5 1000 s: (7.0...16.0) Spread cm3 : 3.50 1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : VOL 6.0 N Edition : 15.08.89 Replaces : 12.85 Test oil : ISO-4113 Combination no. : 0 403 446 110 Injection pump Pump designation : PES6MW100/320RS1004 EP type number : 0 413 406 005 Governor Governor design. : RQV300...1400MW22 Governer no. : 0 420 083 019 Customer-spec. information Customer : VOLVO Engine : TD60B 1st version kW : 132.0 Rated speed : 2800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 173...176 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

Rack travel in mm : 9.00...12.00

: 2.80...2.90 : (2.75...2.95)

per values ____

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

Prestroke mm

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 8.5...8.7 100 s: (8.3...8.9) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.6) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1400 Rack travel in mm: 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Aneroid pressure h: 500 : 85.0...87.0 Del.quantity 1000 : (83.0...89.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 10.00 Speed rpm : 1440...1450 2nd rack travel in: 4.00 Speed rpm : 1565...1595 4th rack travel in: 1700 Speed rpm : 0.00...1.00 LOW IDLE 1

: 1-5-3-6-2-4

position degrees: 7...15

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 4.9

Testing:

rpm : 100 Speed Minimum rack trave: 6.50 rpm : 300

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 320...460 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 190

Rack travel mm : 9.90...10.00

Measurement

1/min : 500 Speed

1st pressure hPa : 500

Rack travel in m: 11.00...11.10

2nd pressure hPa : -

Rack travel in m: 9.50...9.60

3rd pressure hPa : 255

Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 1000

Del.quantity cm3/: 72.0...74.0 1000 s: (70.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...150.0

1000 s: (117.0...153.0)

Rack travel in mm : 19.00...21.00

G23

LOW IDLE

Speed rpm: 300 Rack travel in mm: 4.80...5.00 Del.quantity cm3/: 9.5...13.5

1000 s: (7.0...16.0)

cm3 : 3.50 Spread

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : MB 5,7 A 12 : 19.05.88 Test sheet Phasing : 0-60-120-180-240-300 Edition : 20.08.87 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 124 1st speed rpm: 1300 Injection pump Pump designation : PES6MW100/720RS1101 Rack travel in mm : 11.90...12.00 EP type number : 0 413 406 102 Del.quantity cm3/: 9.8...10.0 Governor Governor design. : RQV300...1300MW34 Governer no. : 0 420 083 032 100 s: (9.6...10.2) Customer-spec. information Spread cm3 : 0.3 Customer 100 s: (0.6) Engine : 0M362LA rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.1
Del.quantity cm3/: 0.9...1.3
100 s: (0.7...1.5) 1st version kW : 141.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1475 Inlet press., bar: 1.50 travel mm : 8.60...9.00 2nd speed rpm : 1340 travel mm : 7.50...7.70
3rd speed rpm : 500
travel mm : 2.60...3.20 Test nozzle holder assembly : 0 681 343 009 Opening 4th speed rpm : 300 pressure, bar : 172...175 travel mm : 1.20...1.60 GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1300 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x1.50x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1300 Aneroid pressure h: 700 Del.quantity : 98.0...100.0 1000 : (96.0...102.0) Spread cm3 : 3.50

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30 : (3.15...3.35) Rack travel in mm : 9.00...12.00

RATED SPEED

1000 : (6.00)

G24

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 10.90 Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1460...1490

4th rack travel in: 1600

rpm : 0.10...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.60 rpm : 300 Speed

Rack travel in mm : 6.00...6.10

Rack travel in mm : 2.00

rpm : 460...520 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : -

Rack travel mm : 10.20...10.30

Measurement

1/min : 500 Speed

1st pressure hPa : 100

Rack travel in m: 10.60...10.70

2nd pressure hPa : 125

Rack travel in m: 11.10...11.30

3rd pressure hPa : 700

Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 800 Speed

Del.quantity cm3/: 87.5...90.5

1000 s: (85.0...93.0)

Spread cm3 : 5.00 1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 50.0...52.0

1000 s: (48.0...54.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.00...6.10 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50 Spread

1000 s: (5.50)

:

Remarks:

625

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 5,7 A 11 Test sheet : 13.06.88 Edition : 20.08.87 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 134 Injection pump Pump designation : PES6MW100/720RS1101 EP type number : 0 413 406 102 Governor Governor design. : RQV300...1300MW44 Governer no. : 0 420 083 053 Customer-spec. information Customer : 0M362LA Engine 1st version kW : 141.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assemb!y Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.20...3.30 : (3.15...3.35) Rack travel in mm : 9.00...12.00 **G26**

Firing order : 1-5- 3- 6- 2- 4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 9.8...10.0 100 s: (9.6...10.2) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 6.0...6.1 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 : 9.50...9.90 rpm : 1350 travel mm 2nd speed : 8.50...8.70 travel mm rpm : 450 3rd speed travel mm : 2.40...3.00 rpm : 300 4th speed travel mm : 1.20...1.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1330 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm: 1300 Aneroid pressure h: 700 : 98.0...100.0 Del. quantity 1000 : (96.0...102.0) : 3.50 cm3 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.90

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1435...1465 4th rack travel in: 1600

Speed rpm : 0.10...1.00

LOW IDLE 1 Control lever

position degrees: 7...15

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.60 Speed rpm : 300

Rack travel in mm : 6.00...6.10

Rack travel in mm : 2.00

Speed rpm : 520...580

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : -Pressure

Rack travel mm : 10.00...10.10

Measurement

Speed 1/min: 500

1st pressure hPa : 100

Rack travel in m: 10.40...10.50

2nd pressure hPa : 125 Rack travel in m: 10.90...11.10

3rd pressure hPa : 700

Rack travel in m: 11.90...12.00

START CUT-OUT

1/min : 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm: 800

Del.quantity cm3/: 87.5...90.5

1000 s: (85.0...93.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 47.5...49.5 1000 s: (45.5...51.5)

RACK STOP ADJUSTMENT

Speed rpm: 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.00...6.10 Del.quantity cm3/: 9.0...13.0

1000 s: (7.0...15.0)

cm3 : 3.50Spread

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : MB 8,7 0 : 0-60-120-180-240-300 Phasing Edition : 13.06.88 Tolerance + - 0 Replaces : 20.08.87 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 143 1st speed rpm : 1300 Injection pump Pump designation : PES6MW100/720RS1101 Rack travel in mm : 11.90...12.00 EP type number : 0 413 406 102 Del.quantity cm3/: 9.8...10.0 Governor Governor design. : RQV300...1300MW44-1 Governer no. : 0 420 083 064 100 s: (9.6...10.2) Customer-spec. information Spread cm3 : 0.3Customer : DB 100 s: (0.6) Engine : 0M362LA 2nd speed rpm : 300.0 1st version kW : 141.0 Rack travel in mm: 6.0...6.1 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) Spread cm3: 0.3 : 2600 Rated speed TEST BENCH REQUIREMENTS 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 947 GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 : 9.50...9.90 rpm : 1350 Inlet press., bar: 1.50 travel mm 2nd speed : 8.50...8.70 Test nozzle holder travel mm : 0 681 343 009 3rd speed rpm : 450 assemb!v : 2.40...3.00 travel mm 4th speed rpm : 300 Opening pressure, bar : 172...175 travel mm : 1.20...1.60 GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1330 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x1.50x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1300 Aneroid pressure h: 700 per values ____ : 98.0...100.0 Del.quantity 1000 : (96.0...102.0) BEGINNING OF DELIVERY : 3.50 cm3 Test pressure, bar: 30...32 Spread 1000 : (6.00) : 3.20...3.30 Prestroke mm : (3.15...3.35) RATED SPEED Rack travel in mm : 9.00...12.00

G28

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.90 Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1435...1465

4th rack travel in: 1600

rpm : 0.10...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.0

Testing:

rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 300

Rack travel in mm : 6.00...6.10

Rack travel in mm : 2.00 rpm : 520...580 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : −

Rack travel mm : 10.20...10.30

Measurement

Speed 1/min: 500

1st pressure hPa : 100

Rack travel in m: 10.60...10.70

2nd pressure hPa : 125

Rack travel in m: 11.10...11.30

3rd pressure hPa : 700

Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 800 Speed

Del.quantity cm3/: 87.5...90.5 1000 s: (85.0...93.0)

Spread cm3 : 5.001000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 50.0...52.0
1000 s: (48.0...54.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.00...6.10 Del.quantity cm3/ : 9.0...13.0

1000 s: (7.0...15.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Set intermediate-speed stop (ZDA) to contact at 1300 1/min, then turn back

1/2 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 D 11 Phasing : 0-60-120-180-240-300 Edition : 24.06.88 Tolerance + - 0 Replaces : 11.85 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 145 1st speed rpm: 1300 Injection pump Pump designation : PES6MW100/720RS1114 Rack travel in mm : 11.00...11.10 EP type number : 0 413 406 111 Governor Del.quantity cm3/ : 7.7...7.9 Governor design. : RQV300...1300MW48 Governer no. : 0 420 083 066 100 s: (7.5...8.1) Customer-spec. information cm3 : 0.3Spread Customer : DB 100 s: (0.6) Engine : 0M366A 2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 1st version kW : 125.0 Del.quantity cm3/: 0.9...1.3 Rated speed : 2600 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 Inlet press., bar: 1.50 : 9.50...9.90 travel mm rpm : 1350 2nd speed Test nozzle holder : 8.50...8.70 travel mm assemb!y : 0 681 343 009 rpm : 450 3rd speed : 2.40...3.00 travel mm rpm : 300 Opening. 4th speed pressure, bar : 172...175 : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1330 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1300 per values ____ : 77.0...79.0 Del.quantity 1000 : (75.0...81.0) BEGINNING OF DELIVERY cm3 : 3.50 Spread Test pressure, bar: 30...32 1000 : (6.00) Prestroke mm : 3.70...3.80 RATED SPEED : (3.65...3.85) Rack travel in mm : 9.00...12.00 1st version

H02

position degrees: 48...56

Testing:

1st rack travel in: 10.00

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

Speed rpm : 1430...1460

4th rack travel in: 1520

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 7.8

Testing:

rpm : 100 Speed

Minimum rack trave: 9.40

Speed rpm: 300 Rack travel in mm: 7.80...7.90 Rack travel in mm: 2.00

Speed rpm : 500...560

CONSTANT REGULATION

Speed rpm : 330...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.00...11.10 and speed rpm : 700

2nd speed rpm

Rack travel in m: 12.10...12.20

3rd speed rpm : 720

Rack travel in m: 12.10...12.20

4th speed rpm : 800

Rack travel in m: 11.80...12.00

5th speed rpm : 900

Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del-quantity cm3/: 74.5...77.5

1000 s: (72.0...80.0) cm3 : 5.00 1000 s: (7.0)

Spread

BREAKAWAY

1st version

H03

1mm rack travel less than

full load rack tr: 10.00

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 7.80...7.90 Del.quantity cm3/ : 9.0...13.0

1000 s: (7.0...15.0)

cm3 : 3.50 Spread

1000 s: (5.50)

.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 4 Edition : 13.06.88 Replaces : 11.85 Test oil : ISO-4113 Combination no. : 0 403 446 147 Injection pump Pump designation : PES6MW100/720RS1115 EP type number : 0 413 406 110 Governor Governor design. : RQV300...1300MW50 Governer no. : 0 420 083 071 Customer-spec. information Customer : 0M366LA Engine 1st version kW : 148.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assemb!v : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Lenath mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm

H04

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.20...3.30 : (3.15...3.35)

Phasing : 0-60-120-180-240-300 Tolerance + - D : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 9.7...9.9 100 s: (9.5...10.1) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0
Rack travel in mm : 5.6...5.7
Del.quantity cm3/ : 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 : 9.50...9.90 travel mm 2nd speed rpm: 1350 : 8.50...8.70 travel mm 3rd speed rpm : 450 travel mm : 2.40...3.00 rpm : 300 4th speed : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 700 : 97.0...99.0 Del.quantity 1000 : (95.0...101.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED

Firing order

: 1-5-3-6-2-4

1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.90 Speed

rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1435...1465

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 16...24 Setting point w/out bumper spring

rpm : 300° Rack travel in mm: 5.6

Testing:

rpm : 100 Speed Minimum rack trave: 7.20 Speed rpm : 300

Rack travel in mm : 5.60...5.70

CONSTANT REGULATION

rpm : 370...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 180

Rack travel mm : 10.80...10.90

Measurement

Speed 1/min: 500

1st pressure hPa : 700

Rack travel in m: 11.90...12.00

2nd pressure hPa : -

Rack travel in m: 10.10...10.20

3rd pressure hPa : 210

Rack travel in m: 11.40...11.70

START CUT-OUT

1/min: 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 600

Del.quantity cm3/: 82.0...85.0 1000 s: (79.5...87.5)

H05

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 53.0...55.0 1000 s: (51.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.60...5.70

Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 3 : 16.06.88 Edition : 12.09.86 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 155 Injection pump Pump designation : PES6MW100/720RS1115 EP type number : 0 413 406 110 Governor Governor design. : RQV300...1300MW62 Governer no. : 0 420 083 085 Customer-spec. information Customer : DB Engine : 0M366LA 1st version kW : 148.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assemb!v : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.20...3.30 : (3.15...3.35) Rack travel in mm : 9.00...12.00

H06

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm: 11.90...12.00 Del.quantity cm3/: 9.7...9.9 100 s: (9.5...10.1) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm: 5.6...5.7 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 travel mm : 9.50...9.90 2nd speed rpm : 1350 : 8.50...8.70 travel mm rpm : 450 3rd speed travel mm : 2.40...3.00 rpm : 300 4th speed travel mm : 1.20...1.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 700 Del.quantity : 97.0...99.0 1000 : (95.0...101.0) Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.90

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

Speed rpm : 1435...1465

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 16...24 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.6

Testing:

Speed rpm : 100 Minimum rack trave: 7.20 Speed rpm : 300

Rack travel in mm : 5.60...5.70

CONSTANT REGULATION

rpm : 370...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 700

Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.40...10.50

2nd pressure hPa : 180

Rack travel in m: 10.80...10.90

3rd pressure hPa : 210

Rack travel in m: 11.60...11.90

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 600

Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0)

H07

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 57.0...59.0

1000 s: (55.0...61.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.60...5.70 Del.quantity cm3/ : 9.0...13.0

1000 s: (7.0...15.0) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

Set intermediate-speed stop (ZDA) to contact at 1300 1/min, then turn back

1/2 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : MB 6,0 D 47 Phasing : 0-60-120-180-240-300 Edition : 13.06.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 156 1st speed rpm : 1300 Injection pump Pump designation : PES6MW100/720RS1120 Rack travel in mm : 12.10...12.20 EP type number : 0 413 406 112 Governor Governor design.: RQV300...1300MW59 Governer no. : 0 420 083 077 cm3 : 0.3 Customer-spec. information Spread Customer : DB Engine : 0M366LA 2nd speed 1st version kW : 141.7 Rated speed : 2600 TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1350 Test nozzle holder travel mm assembly : 0 681 343 009 rpm : 450 3rd speed travel mm rpm : 300 Opening 4th speed pressure, bar : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1340 Outside diameter Speed x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1300 Speed per values ____ Aneroid pressure h: 700 BEGINNING OF DELIVERY Test pressure, bar: 30...32 Spread

: 3.50...3.60

Rack travel in mm : 9.00...12.00

: (3.45...3.65)

Prestroke mm

80H

Del.quantity cm3/: 8.6...8.8 100 s: (8.4...9.0) 100 s: (0.6) rpm : 300.0 Rack travel in mm: 6.0...6.1 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) (B) Setting of injection pump : 9.50...9.90 : 8.50...8.70 : 2.40...3.00 : 1.20...1.60 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP Del.quantity : 86.0...88.0 1000 : (84.0...90.0) cm3 : 3.50 1000 : (6.00) RATED SPEED

1st version Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.10

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1440...1470 4th rack travel in: 1530 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300

Rack travel in mm : 6.00...6.10

CONSTANT REGULATION

Speed rpm : 320...550

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 260 Pressure

Rack travel mm : 11.00...11.10

Measurement

1/min : 500 Speed

1st pressure hPa : 700

Rack travel in m: 12.00...12.10

2nd pressure hPa : -

Rack travel in m: 10.80...10.90

3rd pressure hPa : 310

Rack travel in m: 11.70...12.00

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm: 750

Del.quantity cm3/: 75.5...78.5 1000 s: (73.0...81.0)

Spread cm3 : 5.001000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 47.0...49.0

1000 s: (45.0...51.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.00...6.10

Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50

1000 s: (5.50)

:

Remarks:

H09

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 14 Edition : 30.05.88 Replaces : 12.09.86 Test oil : ISO-4113 Combination no. : 0 403 446 169 Injection pump Pump designation : PES6MW100/720RS1131 EP type number : 0 413 406 123 Governor Governor design. : RQV300...1300MW68 Governer no. : 0 420 083 101 Customer-spec. information Customer : DB : OM 366 LA Engine 1st version kW : 150.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 947 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assemb!y Opening. pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.70...3.80

Rack travel in mm : 9.00...12.00

: (3.65...3.85)

Prestroke mm

H10

: 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1300 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 9.7...9.9 100 s: (9.5...10.1) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.0 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed : 8.40...8.60 travel mm rpm : 1450 2nd speed : 9.30...9.70 travel mm rpm : 600 3rd speed : 3.90...4.50 travel mm rpm : 300 4th speed : 0.80...1.30 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 700 : 97.0...99.0 Del.quantity 1000 : (95.0...101.0) cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.90 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.9 Testing: rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 300 Rack travel in mm : 5.90...6.00 CONSTANT REGULATION rpm : 350...550 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Pressure hPa : 170 Rack travel mm : 10.40...10.50 Measurement Speed 1/min: 500 1st pressure hPa : 700 Rack travel in m: 11.90...12.00 2nd pressure hPa : -Rack travel in m: 10.10...10.20 3rd pressure hPa : 225 Rack travel in m: 11.50...11.80 START CUT-OUT

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 52.0...54.0
1000 s: (50.0...56.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.90 Speed rpm : 1340...1350 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) LOW IDLE Speed rpm : 300
Rack travel in mm : 5.90...6.00
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50 1000 s: (5.50) Remarks:

Aneroid pressure h: 700

Speed rpm: 600 Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5)

FUEL DELIVERY CHARACTERISTICS

1/min : 220 (250)

H11

Speed

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : MB 6,0 D 25 : 0-60-120-180-240-300 Phasing Edition : 30.05.88 Tolerance + - 0 Replaces : 13.05.87 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 170 1st speed rpm : 1300 Injection pump Pump designation : PES6MW100/720RS1144 Rack travel in mm : 11.00...11.10 EP type number : 0 413 406 138 Governor Del.quantity cm3/ : 7.7...7.9 Governor design. : RQV300...1300MW69 100 s: (7.5...8.1) Governer no. : 0 420 083 102 Customer-spec. information cm3 : 0.3 Spread Customer : DB 100 s: (0.6) : 0M366A Engine 2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 : 125.0 1st version kW : 2600 Del.quantity cm3/: 0.9...1.3 Rated speed 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. ⁰C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL rpm : 1340 1st speed Inlet press., bar: 1.50 travel mm : 8.40...8.60 2nd speed rpm : 1450 Test nozzle holder travel mm : 8.70...9.10 : 0 681 343 009 assemb!y rpm : 600 3rd speed : 3.90...4.50 travel mm Opening. rpm : 300 4th speed pressure, bar : 172...175 : 0.80...1.30 travel mm GUIDE SLEEVE POSITION Control-lever position Test lines : 1 680 750 015 Degree: -1 Outside diameter rpm : 1350 Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1300 Speed per values : 77.0...79.0 Del.quantity 1000 : (75.0...81.0) cm3 : 3.50 1000 : (6.00)

Spread

RATED SPEED

1st version

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

H12

Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.00 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 7.8 Testing: rpm : 100 Speed Minimum rack trave: 10.20 Speed rpm: 300 Rack travel in mm: 7.80...7.90

CONSTANT REGULATION Speed rpm : 330...500

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.00...11.10 2nd speed rpm : 750 Rack travel in m: 11.90...12.00 3rd speed rpm : 700 Rack travel in m: 12.00...12.20

4th speed rpm : 1100 Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version rpm : 750 Speed Del.quantity cm3/: 70.5...73.5 1000 s: (68.0...76.0) cm3 : 5.00 Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00 Speed rpm : 1340...1350

H13

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50 Spread 1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : KHD 6,1 N 7 Phasing : 0-60-120-180-240-300 Edition : 08.06.88 Tolerance + - 0 Replaces : 09.03.87 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 186 1st speed rpm: 1325 Injection pump Pump designation : PES6MW100/720RS1133 Rack travel in mm : 10.50...10.60 EP type number : 0 413 406 126 Del.quantity cm3/: 10.1...10.3 Governor Governor design. : RQV325...1325MW79 Governer no. : 0 420 083 123 100 s: (9.9...10.5) Customer-spec. information Spread cm3 : 0.3 Customer : KHD 100 s: (0.6) Engine : BF 6L 913 rpm : 325.0 2nd speed 1st version kW : 124.0 Rack travel in mm: 6.8...6.9 Del. quantity cm3/: 1.1...1.5 Rated speed : 2650 100 s: (0.9...1.7) TEST BENCH REQUIREMENTS cm3 : 0.3 Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 900 GUIDE SLEEVE TRAVEL 1st speed rpm : 1375 Inlet press., bar: 1.50 : 8.70...8.90 travel mm rpm : 1430 2nd speed : 9.50...9.90 rpm : 325 Test nozzle holder travel mm assembly : 0 681 343 009 3rd speed : 1.50...1.90 travel mm Opening. 4th speed rpm : 600 pressure, bar : 172...175 : 2.70...3.30 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1400 Outside diameter Speed Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1325 Speed per values Aneroid pressure h: 900

: 101.0...103.0

1000 : (99.0...105.0) cm3 : 3.50

1000 : (6.00)

Del.quantity

RATED SPEED

Spread

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)
Rack travel in mm : 9.00...12.00

H14

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.50

Speed rpm : 1370...1380

2nd rack travel in: 4.00

Speed rpm : 1445...1475

4th rack travel in: 1550

Speed rpm : 0.10...1.00

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm: 6.8

Testing:

Speed rpm : 100 Minimum rack trave: 8.60 Speed rpm: 325

Rack travel in mm : 6.80...6.90

CONSTANT REGULATION

rpm : 350...650 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 450

Rack travel mm : 10.20...10.00

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 8.90...10.00

2nd pressure hPa : 450

Rack travel in m: 10.20...10.00

3rd pressure hPa : 900

Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min: 245 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm: 850 Del.quantity cm3/: 93.0...97.0 1000 s: (91.0...99.0)

H15

Spread cm3 : 3.501000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/ : 57.0...59.0

1000 s: (55.0...61.0)

RACK STOP ADJUSTMENT

Speed rpm: 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1370...1380

STARTING FUEL DELIVERY

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 6.80...6.90

Del.quantity cm3/: 11.0...15.0

1000 s: (9.0...17.0) cm3 : 3.50 Spread

1000 s: (5.00)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 D 28 : 0-60-120-180-240-300 Phasing Edition : 01.07.88 Tolerance + - 0 Replaces : 19.02.88 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 188 1st speed rpm: 1300 Injection pump Pump designation: PES6MW100/720RS1144 Rack travel in mm : 10.10...10.20 EP type number : 0 413 406 138 Del.quantity cm3/: 6.4...6.6 Governor Governor design.: RQV300...1300MW48-4 Governer no. : 0 420 083 126 100 s: (6.2...6.8) Customer-spec. information Spread cm3 : 0.3Customer 100 s: (0.6) Engine : 0M366A 2nd speed rpm : 300.0 Rack travel in mm : 7.3...7.4 1st version kW : 100.0 : 2600 Rated speed Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 : 8.50...8.70 Inlet press., bar: 1.50 travel mm rpm : 1450 2nd speed Test nozzle holder : 9.30...9.70 travel mm assembly : 0 681 343 009 rpm : 500 3rd speed travel mm : 2.70...3.30 Opening rpm : 300 4th speed pressure, bar : 172...175 travel mm : 1.20...1.70 GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 Outside diameter Speed rpm : 1350 x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1300 Speed (: 64.0...66.0 1000 : (62.0...68.0) cm3 : 3.50 1000 : (6.00) per values ____ Del.quantity BEGINNING OF DELIVERY Spread Test pressure, bar: 30...32

RATED SPEED

1st version

H16

Prestroke mm

: 3.70...3.80

Rack travel in mm: 19.00...21.00

: (3.65...3.85)

position degrees: 50...58

Testing:

1st rack travel in: 9.10

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1415...1445

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm : 100

Minimum rack trave: 9.30

rpm : 300

Rack travel in mm : 7.30...7.40

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.10...10.20

2nd speed rpm : 750

Rack travel in m: 11.10...11.20

3rd speed rpm : 600

Rack travel in m: 11.10...11.20

4th speed rpm : 900

Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 61.5...64.5 1000 s: (59.0...67.0) Spread cm3: 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1340...1350

H17

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 300 Rack travel in mm: 7.30...7.40 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.00)

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : IHC 7,6 S Edition : 15.08.89 : 09.12.88 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 446 193 Tolerance + - D : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1159 EP type number : 0 413 406 146 rpm: 900 1st speed Governor Governor design. : RQV350...1300MW72-3 Rack travel in mm : 10.40...10.50 Governer no. : 0 420 083 142 Del.quantity cm3/: 8.8...9.0 Customer-spec. information Customer : NAVISTAR 100 s: (8.6...9.2) Engine : DT-466 cm3 : 0.3 Spread 1st version kW : 136.0 100 s: (0.6) : 2600 Rated speed rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm : 6.4...6.5 Del.quantity cm3/: 1.6...2.0 Test oil 100 s: (1.3...2.2) inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1250 assembly : 1 688 901 016 : 7.80...8.00 travel mm 2nd speed rpm : 1340 Opening travel mm : 8.80...9.20 : 207...210 rpm : 500 pressure, bar 3rd speed travel mm : 2.60...3.20 Orifice plate rpm : 350 4th speed diameter mm : 0.5 : 1.30...1.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version rpm : 900 Outside diameter Speed x Wall thickness Del.quantity : 88.0...90.0 1000 : (86.0...92.0) : 6.00x2.00x600 x Length mm cm3 : 3.50 Spread

RATED SPEED

1st version Control lever

position degrees: 46...51

1000 : (6.00)

H18

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

Testing:

1st rack travel in: 9.40

Speed rpm : 1370...1390

2nd rack travel in: 4.00

Speed rpm : 1475...1485

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 11...19

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.4

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 Speed rpm : 350

Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

rpm : 370...500 Speed

START CUT-OUT

1/min : 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1300

Del.quantity cm3/: 91.5...95.5 1000 s: (89.5...97.5)

Spread cm3 : 6.50

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1370...1390

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.50

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : IHC 7,6 R21 Test sheet : 15.08.89 Edition : 09.12.88 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 446 195 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 1st speed rpm: 800 Governor Governor design. : RQV350...1200MW46-13 Rack travel in mm : 12.40...12.50 Governer no. : 0 420 083 144 Del.quantity cm3/: 11.9...12.1 Customer-spec. information 100 s: (11.7...12.3) Customer : NAVISTAR : DTA-466 cm3 : 0.3Engine Spread 1st version kW : 180.0 100 s: (0.6) Rated speed : 2400 rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.3...6.4 Del.quantity cm3/: 1.9...2.3 Test oil 100 s: (1.6...2.5) cm3 : 0.3 inlet temp. °C : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1350 assemb!y : 1 688 901 016 travel mm : 8.30...8.50 rpm : 1460 : 9.10...9.50 2nd speed travel mm Opening. pressure, bar : 207...210 3rd speed rpm : 550 travel mm : 3.10...3.70 : 350 Orifice plate 4th speed rpm diameter mm : 0.5 : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter Speed rpm : 800 x Wall thickness Aneroid pressure h: 800 Del.quantity : 119.5...121.5 1000 : (117.5...123.5) Spread cm3 : 3.50 : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses 1000 : (6.00) Set equal delivery quant. per values RATED SPEED BEGINNING OF DELIVERY 1st version Test pressure, bar: 30...32 Control lever position degrees: 43...48

H20

Testing:

1st rack travel in: 11.40

Speed rpm : 1265...1285

2nd rack travel in: 4.00

Speed rpm : 1395...1405

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 12...20

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.3

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00

грт : 350

Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

rpm : 360...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 190

Rack travel mm : 11.20...11.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.70

2nd pressure hPa : 360
Rack travel in m: 11.90...12.20
3rd pressure hPa : 800

Rack travel in m: 12.40...12.50

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

rpm : 1200

Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

H21

rpm : 500 Speed

Del.quantity cm3/: 86.5...88.5

1000 s: (84.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0) Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350

Rack travel in mm : 6.30...6.40

Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 R23 Edition : 15.08.89 Replaces : 09.12.88 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 403 446 196 Tolerance + - D : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 rpm: 800 1st speed Governor Governor design. : RQV350...1200MW46-14 Rack travel in mm : 11.70...11.80 Governer no. : 0 420 083 145 Del.quantity cm3/: 10.8...11.0 Customer-spec. information Customer : NAVISTAR 100 s: (10.6...11.2) Engine : DTA-466 Spread cm3 : 0.31st version kW : 169.0 100 s: (0.6) Rated speed : 2400 rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.2...6.3 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Spread cm3: 0.3 Test oil inlet temp. °C : 38...42 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1350 assembly : 1 688 901 016 : 8.30...8.50 travel mm rpm : 1460 2nd speed Opening : 9.10...9.50 travel mm rpm : 550 pressure, bar : 207...210 3rd speed : 3.10...3.70 travel mm rpm : 350 Orifice plate 4th speed diameter mm : 0,5 : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter rpm : 800 Speed x Wall thickness Aneroid pressure h: 800 : 6.00x2.00x600 x Length mm Del.quantity : 108.0...110.0 1000 : (106.0...112.0) cm3 : 3.50 (A) Injection pump setting values Spread Insp. values in parentheses 1000 : (6.00) Set equal delivery quant. per values ____ RATED SPEED BEGINNING OF DELIVERY 1st version

Control lever

position degrees: 44...49

Test pressure, bar: 30...32

Testing:

1st rack travel in: 10.70

rpm : 1250...1270 Speed

2nd rack travel in: 4.00

Speed rpm : 1390...1400

4th rack travel in: 1460

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.2

Testing:

Speed rpm: 100 Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 6.20...6.30

CONSTANT REGULATION

rpm : 360...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 180 Speed Pressure

Rack travel mm : 11.00...11.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.70...10.80

2nd pressure hPa : 270

Rack travel in m: 11.30...11.60 3rd pressure hPa : 800

Rack travel in m: 11.70...11.80

START CUT-OUT

Speed 1/min: 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

rpm : 1200 Speed

Del.quantity cm3/: 111.0...115.0

1000 s: (109.0...117.0)

cm3 : 6.50 Spread

1000 s: (7.0)

Aneroid pressure h: -

H23

Speed rpm : 500
Del.quantity cm3/ : 86.5...88.5
 1000 s: (84.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1250...1270

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.20...6.30

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : IHC 7,6 R24 Test sheet Edition : 15.08.89 Replaces : 09.12.88 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 403 446 197 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 1st speed rpm: 800 Governor Governor design. : RQV350...1200MW46-15 Rack travel in mm : 10.90...11.00 Governer no. : 0 420 083 146 Del.quantity cm3/: 9.7...9.9 Customer-spec. information 100 s: (9.5...10.1) Customer : NAVISTAR Engine : DTA-466 cm3 : 0.3 Spread 1st version kW : 158.0 100 s: (0.6) Rated speed : 2400 rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.3...6.4 Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.3100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1350 assemb!y : 1 688 901 016 travel mm : 8.30...8.50 2nd speed rpm : 1460 Opening travel mm : 9.10...9.50 rpm : 550 pressure, bar : 207...210 3rd speed : 3.10...3.70 travel mm rpm : 350 Orifice plate 4th speed diameter mm : 0,5 : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter rpm : 800 Speed x Wall thickness Aneroid pressure h: 800 Del.quantity : 97.5...99.5 1000 : (95.5...101.5) : 6.00X2.00X600 x Length mm cm3 : 3.50 1000 : (6.00) (A) Injection pump setting values Spread Insp. values in parentheses Set equal delivery quant. per values RATED SPEED

1st version

Control lever

position degrees: 43...48

H24

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Testing:

1st rack travel in: 9.90

Speed rpm : 1270...1290

2nd rack travel in: 4.00

Speed rpm : 1380...1390

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...18

Setting point w/out bumper spring Speed rpm : 350

Rack travel in mm: 6.3

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

rpm : 350

Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 Pressure hPa : 200

Rack travel mm : 10.70...10.80

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.70

2nd pressure hPa : 280

Rack travel in m: 10.80...11.00

3rd pressure hPa : 800

Rack travel in m: 10.90...11.00

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 1200 Del.quantity cm3/ : 99.5...103.5

1000 s: (97.5...105.5) cm3 : 5.00

Spread

1000 s: (7.0)

Aneroid pressure h: -

H25

Speed rpm : 500 Del.quantity cm3/ : 86.5...88.5

1000 s: (84.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.30...6.40

Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5) cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7.6 T Edition : 15.08.89 Replaces : 28.04.89 Test oil : ISO-4113 Combination no. : 0 403 446 198 Injection pump Pump designation : PES6MW100/320RS1160 EP type number : 0 413 406 147 Governor Governor design. : RQV350...1200MW46-16 Governer no. : 0 420 083 147 Customer-spec. information Customer : NAVISTAR Engine : DTA-466 1st version kW : 176.4 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 016 assembly Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,5 Test lines : 1 680 750 008 . Outside diameter

x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 800 Rack travel in mm : 12.80...12.90 Del.quantity cm3/: 12.5...12.7 100 s: (12.3...12.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm: 6.5...6.6 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 : 8.30...8.50 travel mm 2nd speed rpm : 1460 travel mm : 9.10...9.50 3rd speed rpm : 550 : 3.10...3.70 travel mm : 350 4th speed rpm : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Speed Aneroid pressure h: 800 Del.quantity : 125.0...127.0 1000 : (123.0...129.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 44...49

Test pressure, bar: 30...32

Testing:

1st rack travel in: 11.80

rpm : 1260...1280 Speed

2nd rack travel in: 4.00

rpm : 1385...1395 Speed

4th rack travel in: 1500

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 12...20

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

rpm : 350

Rack travel in mm : 6.50...6.60

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 800

Pressure hPa : 180

: 10.40...10.50 Rack travel mm

Measurement

1/min : 800 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.20

2nd pressure hPa : 480

Rack travel in m: 11.90...12.20

3rd pressure hPa : 800

Rack travel in m: 12.80...12.90

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 1200 Del.quantity cm3/ : 127.0...131.0 1000 s: (125.0...133.0)

cm3 : 6.50

Spread 1000 s: (7.0)

Aneroid pressure h: -

H27

1000 s: (80.0...86.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1260...1280

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.50...6.60

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 R Edition : 13.06.88

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 202

Injection pump

Pump designation : PES6MW100/320RS1167

EP type number : 0 413 406 151

Governor

Governor design. : RQV275...1250MW25-7

Governer no. : 0 420 180 381

Customer-spec. information Customer : RVI

: MIDR 06 02 12L Engine

1st version kW : 122.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assemb!y

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.95...3.05 : (2.90...3.10)

Rack travel in mm : 9.00...12.00

H28

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Del.quantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 275.0 2nd speed Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 2.3...2.7

100 s: (2.0...2.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.20...8.40

rpm : 1450 2nd speed

travel mm : 8.90...9.30

3rd speed rpm : 275

: 1.00...1.40 travel mm

rpm : 900 4th speed

: 5.40...6.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1250 Aneroid pressure h: 1000

: 103.0...105.0 Del.quantity 1000 : (101.0...107.0)

cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 8...16

Testing:

1st rack travel in: 11.60

Speed rpm : 1320...1330

2nd rack travel in: 4.0

Speed rpm : 1485...1515

4th rack travel in: 1650

Speed rpm : 1.00...0.00

LOW IDLE 1

Control lever

position degrees: 60...68

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm : 7.0

Speed rpm : 275 Rack travel in mm : 7.10...6.90

Speed rpm : 200 Maximum rack trave: 7.40

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 160

Rack travel mm : 10.80...10.70

Measurement

Speed 1/min: 500

1st pressure hPa : 1000

Rack travel in m: 12.50...12.60

2nd pressure hPa : -

Rack travel in m: 10.20...10.10

3rd pressure hPa : 320

Rack travel in m: 12.20...11.90

START CUT-OUT

Speed 1/min: 190 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 900
Del.quantity cm3/: 101.0...105.0
1000 s: (99.0...107.0)
Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

J01

Speed rpm : 500 Del.quantity cm3/ : 52.0...54.0 1000 s: (50.0...56.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 275 Speed

Rack travel in mm: 7.10...6.90

Del.quantity cm3/: 23.0...27.0

1000 s: (20.5...29.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark 9.5° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : MB 6.0 D 40 : 01.07.88 Test sheet : 0-60-120-180-240-300 Phasing Edition Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 207 1st speed rpm: 1300 Injection pump Pump designation : PES6MW100/720RS1144 Rack travel in mm : 11.20...11.30 EP type number : 0 413 406 138 Governor Del.quantity cm3/: 7.9...8.1 Governor design. : RQ300/1300MW96 100 s: (7.7...8.3) Governer no. : 0 420 082 032 Customer-spec. information cm3 : 0.3Spread Customer : DB 100 s: (0.6) : 0M366A Engine 2nd speed rpm : 300.0 1st version kW : 125.0 Rack travel in mm: 7.4...7.6 : 2600 Del.quantity cm3/: 1.0...1.4 Rated speed 100 s: (0.7...1.6) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1425 Inlet press., bar: 1.50 : 9.50...9.90 travel mm rpm : 1350 2nd speed : 7.80...8.00 Test nozzle holder travel mm assembly : 0 681 343 009 rpm : 525 3rd speed travel mm : 4.90...5.50 4th speed rpm : 300 Opening pressure, bar : 2.10...2.50 : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -2 Speed rpm : 1200 Rack travel in mm : 12.70...14.30 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1300 Set equal delivery quant. Speed per values ____ : 79.0...81.0 Del.quantity 1000 : (77.0...83.0) BEGINNING OF DELIVERY cm3 : 3.50 Spread Test pressure, bar: 30...32 1000 : (6.00) Prestroke mm : 3.70...3.80 RATED SPEED : (3.65...3.85) Rack travel in mm : 9.00...12.00 1st version

J02

Control lever position degrees: 34...42 Setting point: Speed rpm: 1200 Rack travel in mm: 13.5 Testing: 1st rack travel in: 10.20 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 7.5 Testing: rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm: 300 Rack travel in mm : 7.40...7.60 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.20...11.30 2nd speed rpm : 900 Rack travel in m: 11.90...12.10 3rd speed rpm : 600 Rack travel in m: 12.40...12.60 START CUT-OUT Speed 1/min: 180 (200) FUEL DELIVERY CHARACTERISTICS 1st version : 900 Speed rpm Del.quantity cm3/: 77.0...80.0 1000 s: (74.5...82.5) cm3 : 5.00Spread 1000 s: (7.0) Speed rpm : 600 Del.quantity cm3/ : 70.0...73.0 1000 s: (67.5...75.5) cm3 : 5.00 1000 s: (7.0) Spread BREAKAWAY

1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm: 100 Del.quantity cm3/: 80.0...90.0

1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 7.40...7.60 Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5) cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

:

103

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8.8 S Edition : 15.08.89 Edition Replaces Test oil : 13.06.88 : ISO-4113

Combination no. : 0 403 446 208

Injection pump

Pump designation : PES6MW100/320RS1171

EP type number : 0 413 406 156

Governor

Governor design. : RQV300...1400MW97 Governer no. : 0 420 083 158

Customer-spec. information Customer : RVI

: MIDSO60212C Engine

1st version kW : 97.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15) Rack travel in mm : 9.00...12.00

J04

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

cm3 : 0.3 Spread

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm : 6.70...6.90 Del.quantity cm3/ : 1.4...1.8 100 s: (1.1...2.0)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570

: 9.20...9.60 rpm : 1450 travel mm

2nd speed

travel mm : 8.30...8.50

3rd speed rpm : 500

travel mm : 3.00...3.40

rpm : 300 4th speed

travel mm : 1.10...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Del.quantity

rpm : 1400 y : 75.0...77.0 1000 : (73.0...79.0) cm3 : 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.00 Speed rpm : 1460...1470 2nd rack travel in: 4.00 Speed rpm : 1565...1595 4th rack travel in: 1700 Speed rpm : 0.00...1.00 LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300

Rack travel in mm: 6.8

Testing:
Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm: 900 Del.quantity cm3/: 66.5...69.5 1000 s: (64.0...72.0) Spread cm3: 5.00 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00 Speed rpm : 1460...1470

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.40
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 8,8 T Edition : 15.08.89 : 07.10.88 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 211 Injection pump Pump designation : PES6MW100/320RS1176 EP type number : 0 413 406 158 Governor Governor design. : RQV275...1250MW80 Governer no. : 0 420 083 128 Customer-spec. information Customer : RVI Engine : MIDR 060226H 1st version kW : 143.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ : 3.50...3.60 : (3.45...3.65)

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 275.0 2nd speed Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 2.0...2.4 100 s: (1.7...2.6) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450 : 8.90...9.30 travel mm

2nd speed rpm : 1325

travel mm : 8.00...8.20

3rd speed rpm : 500

travel mm : 3.00...3.60

4th speed rpm : 275

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1320 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 750

Del.quantity : 99.0...101.0 1000 : (97.0...103.0) Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

J06

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.40

rpm : 1330...1350 Speed

2nd rack travel in: 4.00

Speed rpm : 1440...1480

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm: 6.5

Testing:

Speed rpm : 200 Minimum rack trave: 8.00 Speed rpm : 275

Rack travel in mm : 6.40...6.60

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 hPa : 750 Pressure

Rack travel mm : 11.40...11.50

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 150

Rack travel in m: 10.00...10.10

3rd pressure hPa : 300

Rack travel in m: 10.90...11.20

START CUT-OUT

Speed 1/min: 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750 Speed rpm: 750 Del.quantity cm3/: 94.5...97.5

1000 s: (92.0...100.0)

cm3 : 5.00 Spread 1000 s: (7.0)

Aneroid pressure h: -

J07

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1330...1350

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...102.0

1000 s: (85.0...105.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 20.0...24.0

1000 s: (17.5...26.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Set start-of-delivery sensor at prestroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Firing order Test sheet : IHC 7,6 R22 : 15.08.89 : 09.12.88 Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 403 446 213 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 1st speed rpm: 900 Governor Governor design.: RQV350...1300MW72-4 Rack travel in mm : 10.50...10.60 Governer no. : 0 420 083 170 Del.quantity cm3/: 9.9...10.1 Customer-spec. information 100 s: (9.7...10.3) Customer : NAVISTAR Engine : DT-466 Spread cm3 : 0.31st version kW : 154.5 100 s: (0.6) Rated speed : 2600 2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1460 : 1 688 901 016 assembly : 9.10...9.50 travel mm 2nd speed rpm : 1350 Opening travel mm : 8.30...8.50 : 207...210 rpm : 550 pressure, bar 3rd speed : 3.10...3.70 travel mm : 350 Orifice plate 4th speed rpm diameter mm : 0,5 : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version rpm : 900 Outside diameter Speed x Wall thickness Aneroid pressure h: 800 Del.quantity : 99.0...101.0 1000 : (97.0...103.0) : 6.00x2.00x600 x Length mm cm3 : 3.50 (A) Injection pump setting values Spread Insp. values in parentheses 1000 : (6.00) Set equal delivery quant.

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

per values ____

RATED SPEED

position degrees: 43...51

Testing:

1st rack travel in: 9.50

rpm : 1365...1385 Speed

2nd rack travel in: 4.00

Speed rpm : 1470...1480 4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.5

Testing:

rpm : 100 Speed

Minimum rack trave: 7.30

rpm : 350

Rack travel in mm : 5.50...5.60

CONSTANT REGULATION

rpm : 390...480 Speed

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

: 1300 Speed rpm

Del.quantity cm3/: 101.0...105.0 1000 s: (99.0...107.0) Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1365...1385

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 350 Speed

J09

Rack travel in mm : 5.50...5.60 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose

with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : IHC 7,6 T 2 Edition : 15.08.89 : 09.12.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 403 446 214 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6MW100/320RS1160 : 0 413 406 147 EP type number BASIC SETTING Governor Governor design. : RQV350...1300MW46-18 rpm: 900 1st speed Governer no. : 0 420 083 171 Rack travel in mm : 11.90...12.00 Customer-spec. information Del.quantity cm3/: 11.0...11.2 Customer : NAVISTAR : DTA-466 100 s: (10.8...11.4) Engine 1st version kW : 156.0 Spread cm3 : 0.3: 2600 ------Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Test oil Rack travel in mm: 6.3...6.5 inlet temp. °C : 38...42 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Overflow valve cm3 : 0.3Spread : 2 417 413 037 100 s: (0.5) Inlet press. bar: 2.80 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 016 assembly GUIDE SLEEVE TRAVEL rpm : 1460 1st speed Opening. travel mm : 9.10...9.50 : 207...210 rpm : 1350 pressure, bar 2nd speed : 8.30...8.50 travel mm rpm : 550 : 3.10...3.70 rpm : 350 Orifice plate 3rd speed diameter mm : 0,5 travel mm 4th speed : 1.30...1.70 travel mm Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL 'LOAD STOP Outside diameter x Wall thickness 1st version rpm : Mix : 6.00X2.00X600 x Length mm Speed Aneroid pressure h: & (A) Injection pump setting values : 119.0...112.0 Del.quantity 1000 : £108.0...114.0) Insp. values in parentheses Set equal delivery quant. cm3 : 3.50 Spread per values ____ 1000 : (6.00)

BEGINNING OF DELIVERY | RATED SPEED Test pressure, bar: 30...32

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.90

rpm : 1355...1375 Speed

2nd rack travel in: 4.00

Speed rpm : 1475...1485

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.4

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00 Speed rpm: 350

Rack travel in mm : 6.30...6.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 800 Pressure

Rack travel mm : 11.90...12.00

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.30

2nd pressure hPa : 165

Rack travel in m: 10.70...10.80 3rd pressure hPa : 360

Rack travel in m: 11.30...11.60

START CUT-OUT

1/min : 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 Speed rpm : 1300

Del.quantity cm3/: 113.0...117.0

1000 s: (111.0...119.0)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0

1000 s: (72.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 1355...1375 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 16.0...23.0

1000 s: (13.5...22.5) cm3 : 3.50 Spread

1000 s: (5,50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 55 : 15.08.89 Edition : 07.02.89 Replaces Test oil : ISO-4113

: 0 403 446 231 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144-

: 0 413 406 159 EP type number

Governor

Governor design.: RQV300...1409MW48-8

: 0 420 083 175 Governer no.

Customer-spec. information Customer : DB-NKW

: OM 366 A Engine

1st version kW : 125.0 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test neggle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 7.5...7.7

100 s: (7.3...7.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 8.5...8.7 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

: 9.10...9.50 travel mm

rpm : 1450 2nd speed

: 8.30...8.50 travel mm

rpm : 500 3rd speed

: 2.50...3.10 travel mm

rpm : 300 4th speed

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1430 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

: 75.0...77.0 Del.quantity

1000 : (73.0...79.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEEL

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 9.70

Speed rpm : 1440...1450

2nd rack travel in: 4.00

Speed rpm : 1535...1565 4th rack travel in: 1650

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 8.6

Testing:

rpm : 100 Speed Minimum rack trave: 10.00 Speed rpm: 300 Rack travel in mm: 8.50...8.70

TORQUE CONTROL

Dimension a mm : 1.50

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 10.70...10.80 2nd speed rpm : 750 Rack travel in m: 12.20...12.30

3rd speed rpm : 950

Rack travel in m: 11.70...11.90

4th speed rpm : 1200

Rack travel in m: 10.80...11.10

START CUT-OUT

1/min: 200 (230) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 74.5...77.5

1000 s: (72.0...80.0)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

Speed rpm : 1440...1450 STARTING FUEL DELIVERY

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm: 300 Rack travel in mm: 8.50...8.70 Del.quantity cm3/: 9.0...13.0

1000 s: (6.5...15.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

J13

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 69 Edition : 15.08.89 Replaces : 21.04.89 Test oil : ISO-4113

Combination no. : 0 403 446 232

Injection pump

Pump designation : PES6MW100/720RS1144-

EP type number : 0 413 406 159

Governor

Governor design. : RQV300...1400MW48-11

Governer no. : 0 420 083 190

Customer-spec. information Customer : DB-NKW

Engine : 0M366A

1st version kW : 125.0 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 7.5...7.7

100 s: (7.3...7.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm : 7.8...8.0 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

: 9.20...9.60 travet mm

2nd speed rpm : 1450

travel mm : 8.30...8.50

: 550 3rd speed rpm

travel mm : 2.80...3.40

: 300 4th speed rpm

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1450 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 75.0...77.0 Del.quantity 1000

: (73.0...79.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 48...56

Testing:

1st rack travel in: 9.90

rpm : 1440...1450 Speed

2nd rack travel in: 4.00

Speed rpm : 1530...1560

4th rack travel in: 1650

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 7.9

Testing:

Speed rpm : 100

Minimum rack trave: 9.50 Speed rpm : 300

Rack travel in mm : 7.80...8.00

TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1300 Rack travel in m: 10.90...11.00

2nd speed rpm : 800

Rack travel in m: 11.50...11.60

3rd speed rpm : 1000

Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/: 67.5...70.5

1000 s: (65.0...73.0)

Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 80.0...90.0

1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 7.80...8.00 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 \$ 4 Edition : 18.08.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 233

Injection pump

Pump designation : PES6MW100/320RS1171

EP type number : 0 413 406 156

Governor

Governor design.: RQV300...1400MW97-1

: 0 420 083 195 Governer no.

Customer-spec. information

Customer : RVI

Engine : MIDS060212C

: 97.0 1st version kW Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X690

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

: (2.95...3.15)
Rack travel in mm : 9.00...12.00

J16

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

cm3 : 0.3 Spread

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm : 6.70...6.90

Del.quantity cm3/: 1.4...1.8

100 s: (1.1...2.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

rpm : 500 3rd speed

: 2.80...3.40 travel mm

rpm : 300 4th speed

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 75.0...77.0 Del.quantity

1000 : (73.0...79.0)

cm3 : 3.50 Spread

1000 : (6,00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.00

Speed rpm : 1460...1470

2nd rack travel in: 4.00

Speed rpm : 1565...1595

4th rack travel in: 1700

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 6.8

Testing:

rpm : 200 Speed Minimum rack trave: 8.50 : 300 Speed rpm

Rack travel in mm : 6.70...6.90

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 900 rpm

Del.quantity cm3/: 66.5...69.5 1000 s: (64.0...72.0)

cm3 : 5.00 Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

rpm : 1460...1470 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.70...6.90 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 8,8 T 1 : 18.08.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 234 Injection pump Pump designation : PES6MW190/320RS1176 EP type number : 0 413 406 158 Governor Governor design. : RQV275...1250MW80-4 Governer no. : 0 420 083 196 Customer-spec. information Customer : RVI Engine : MIDR 060226H 1st version kW : 143.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm: 9.00...12.00 J18

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm : 1250 1st speed Rack travel in mm : 11.40...11.50 Del.quantity cm3/: 9.9...10.1 100 s: (9.7...10.3) cm3 : 0.3 Spread 100 s: (0.6) rpm : 275.0 2nd speed Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 2.0...2.4 100 s: (1.7...2.6) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 : 8.90...9.30 travel mm 2nd speed rpm : 1325 travel mm : 8.00...8.20 3rd speed rpm : 500 travel mm : 3.00...3.60 4th speed rpm : 275 travel mm : 1.00...1.40 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1320 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed Aneroid pressure h: 750 Del.quantity : 99.0...101.0 1000 : (97.0...103.0) Spread cm3 : 3.50 1000 : (6.00)

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.40

rpm : 1330...1350 Speed

2nd rack travel in: 4.00

rpm : 1440...1480 Speed

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 4.9

Testing:

rpm : 200 Speed Minimum rack trave: 8.00 Speed rpm : 275

Rack travel in mm : 6.40...6.60

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 750 Pressure

Rack travel mm : 11.40...11.50

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 150

Rack travel in m: 10.00...10.10

3rd pressure hPa : 300

Rack travel in m: 10.90...11.20

START CUT-OUT

1/min : 200 (220) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750 rpm : 750 Speed

Del.quantity cm3/: 94.5...97.5 1000 s: (92.0...100.0) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 51.0...53.0

1000 s: (49.0...55.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1330...1350

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...102.0

1000 s: (85.0...105.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 20.0...24.0

1000 s: (17.5...26.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Set start-of-delivery sensor at prestroke to 3.50...3.60 mm for cylinder 1.

J19

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : RVI 8,8 S 3 : 0-60-120-180-240-300 Phasing : 18.08.89 Edition Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 235 1st speed rpm: 1300 Injection pump Pump designation : PES6MW100/320RS1171 Rack travel in mm : 12.40...12.50 EP type number : 0 413 406 156 Governor Del.quantity cm3/: 8.6...8.8 Governor design. : RQV300...1300MW80-5 Governer no. : 0 420 083 197 100 s: (8.4...9.0) Customer-spec. information Spread cm3 : 0.3Customer : RVI 100 s: (0.6) Engine : MIDS 060212B rpm : 300.0 2nd speed 1st version kW : 113.0 Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 1.3...1.7 Rated speed : 2600 100 s: (1.0...1.9) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 033 GUIDE SLEEVE TRAVEL 1st speed rpm : 1500 travel mm : 8.70...9.10 Inlet press., bar: 1.50 2nd speed rpm: 1350 travel mm : 7.60...7.80 d speed rpm : 500 Test nozzle holder assembly : 0 681 343 009 3rd speed travel mm : 2.80...3.40 th speed rpm : 300 Opening 4th speed pressure, bar : 172...175 travel mm : 1.20...1.60 FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter Speed rpm : 1300 x Wall thickness Aneroid pressure h: 700 x Length mm : 6.00x2.00x600 Del.quantity : 86.0...88.0 1000 : (84.0...90.0) cm3 : 3.50 1000 : (6.00) (A) Injection pump setting values Spread Insp. values in parentheses Set equal delivery quant. per values RATED SPEED BEGINNING OF DELIVERY 1st version Test pressure, bar: 30...32 Control lever position degrees: 60...68 Prestroke mm : 3.00...3.10 : (2.95...3.15) Testing:

1st rack travel in: 11.40

J20

Rack travel in mm : 9.00...12.00

rpm : 1370...1380 Speed

2nd rack travel in: 4.00

Speed rpm : 1520...1550 4th rack travel in: 1650

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...18

Setting point w/out bumper spring

rom : 300° Rack travel in mm: 6.7

Testing:

Speed rpm : 100 Minimum rack trave: 7.90 Speed rpm : 300

Rack travel in mm : 6.60...6.80

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 Pressure ĥPa :-

Rack travel mm : 10.50...10.60

Measurement

1/min: 500 Speed

1st pressure hPa : 100

Rack travel in m: 10.90...11.00 2nd pressure hPa : 200

Rack travel in m: 11.80...12.10

3rd pressure hPa : 700

Rack travel in m: 12.40...12.50

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 900 Speed

Del.quantity cm3/: 81.0...84.0 1000 s: (78.5...86.5) Spread cm3: 5.00

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 43.0...45.0

1000 s: (41.0...47.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1370...1380 Speed

STARTING FUEL DELIVERY

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.60...6.80 Del.quantity cm3/ : 13.0...17.0

1000 s: (10.5...19.5) cm3 : 3.50 1000 s: (5.50)

Spread

Remarks:

Set start-of-delivery sensor at prestroke to 3.50...3.60 mm for cylinder 1. BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 E Edition : 28.11.88 Replaces : 26.06.87 Test oil : ISO-4113

Combination no. : 0 403 466 107

Injection pump

Pump designation : PES6MW100/120RS1148

EP type number : 0 413 406 143

Governor

Governor design. : RSV400...900MW7A319-

: 0 420 085 082 Governer no.

Customer-spec. information Customer : CUMMINS/US

: 6 CTA-8.3 L Engine

1st version kW : 196.9 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70 : (3.55...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 13.00...13.10

Del.guantity cm3/: 18.3...18.5

100 s: (18.1...18.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm: 400.0 Rack travel in mm : 5.9...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Decree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 183.0...185.0 Del.quantity 1000 : (181.5...187.5)

Spread

cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing: 1st rack travel in: 12.00 rpm : 940...950 Speed 2nd rack travel in: 4.00 Speed rpm : 965...990 4th rack travel in: 1000 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.9 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.90...6.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 179.0...183.0 1000 s: (177.0...185.0) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.00 rpm : 940...950 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed грт : 400

Rack travel in mm : 5.90...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

Start-of-delivery mark 9^{0} cam angle after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 3.50...3.60 : (3.45...3.65) Test sheet : CUM 8,3 N Rack travel in mm : 9.00...12.00 : 15.08.89 Edition Firing order : 1-5-3-6-2-4 Replaces Test oil : ISO-4113 Combination no. : 0 403 466 121 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - 0 Injection pump : 0.50 (0.75) Pump designation : PES6MW100/120RS1184 EP type number : 0 413 406 171 Time to cyl. no. : 1 Governor Governor design. : RSV400...1300MW2A334 BASIC SETTING Governer no. : 0 420 085 122 rpm : 1250 1st speed Cust. part no. : 3280646 Rack travel in mm : 10.90...11.00 Customer-spec. information Customer Del.quantity cm3/: 12.5...12.7 : CUMMINS : 6 BTAA 5.9 100 s: (12.3...12.9) Engine 1st version kW : 157.0 Spread cm3 : 0.3: 2600 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Test oil Rack travel in mm: 6.8...7.0 inlet temp. °C Del.quantity cm3/: 1.6...2.0 : 38...42 100 s: (1.3...2.2) cm3 : 0.3 Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 assembly : 1 688 901 017 rpm : 800 Rack travel in mm : 0.30...1.00 Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter mm : 0,6 rpm : 1250 Speed Aneroid pressure h: 800 Del.quantity : 125.0...127.0 1000 : (123.0...129.0) cm3 : 3.50 : 1 680 750 008 Spread 1000 : (6.00) x Wall thickness : 6.00x2.00x600 x Length mm RATED SPEED

Test lines

Outside diameter

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Setting point: rpm : 800 Speed

position degrees: 50...58

1st version

Control lever

Rack travel in mm: 0.6 Testing: 1st rack travel in: 9.90 Speed rpm : 1295...1305 2nd rack travel in: 4.00 rpm : 1370...1400 Speed

LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring Speed rpm : 400

rpm : 0.30...1.70

Rack travel in mm: 6.9

4th rack travel in: 1450

Speed

Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 6.80...7.00

Rack travel in mm: 2.00 rpm : 590...650 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm : 500 hPa :− Pressure

Rack travel mm : 9.90...10.00

Measurement

1/min: 500 Speed

1st pressure hPa : 490

Rack travel in m: 10.20...10.30

2nd pressure hPa : 550 Rack travel in m: 10.40...10.70 3rd pressure hPa : 800

Rack travel in m: 10.90...11.00

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 80.0...82.0

1000 s: (78.0...84.0)

Spread cm3 : 5.00

1000 s: (7.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...145.0 1000 s: (132.0...148.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 6.80...7.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: C.D.C. #3280646

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 23 : 01.07.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 474 003

Injection pump

Pump designation : PES4MW100/720RS1127

EP type number : 0 413 404 103

Governor

Governor design.: RSV350...1300MW0A318

-3

: 0 420 985 987 Governer no.

Customer-spec. information

Customer

Engine : 0M364A

1st version kW : 85.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nczzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

J26

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.1...7.2

Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed

Del.quantity : 84.0...86.0 1000 : (82.0...88.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 53...61

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.40

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

Speed rpm : 1390...1420 4th rack travel in: 1480

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 22...30

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 7.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 7.10...7.20

Rack travel in mm: 2.00 Speed rpm : 470...530

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.40...12.60

2nd speed rpm : 750

Rack travel in m: 13.20...13.40

3rd speed rpm : 950

Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 750 rpm

Del.quantity cm3/: 79.0...81.0 1000 s: (77.0...83.0) Spread cm3: 5.00

1000 s: (7.0)

rpm : 950 Speed

Del.quantity cm3/: 83.0...86.0

1000 s: (80.5...88.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

J27

rpm : 350 Speed

Rack travel in mm : 7.10...7.20 Del.quantity cm3/: 9.0...13.0

1000 s: (7.0...15.0) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-3-4-2 Note remarks Test sheet : LIE 5,6 B Phasing : 0-90-180-270 Edition : 14.07.89 Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 Time to cyl. no. Combination no. : 0 403 474 008 BASIC SETTING Injection pump Pump designation : PES4MW100/720RS1181 1st speed rpm: 1000 EP type number : 0 413 404 107 Governor Rack travel in mm : 11.70...11.80 Governor design. : RSV400...1000MW1A333 Governer no. : 0 420 085 118 Del.quantity cm3/: 14.6...14.8 Customer-spec. information 100 s: (14.4...15.0) Customer : LIEBHERR Spread cm3 : 0.3Engine : 914 100 s: (0.6) 1st version kW : 120.0 Rated speed : 2000 rpm : 400.0 2nd speed Rack travel in mm: 5.6...5.8 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) Test oil Spread cm3 : 0.3inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 417 413 049 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Rack travel in mm : 0.30...1.00 Test nozzle holder assembly : 0 681 343 009 Governor spring pre-tension Click setting x : 3.80 Opening. pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 740 008 rpm : 1000 Speed : 146.0...148.0 Del quantity 1000 : (144.0...150.0) cm3 : 3.50 Outside diameter x Wall thickness Spread cm3 : 6.00x2.00x600 x Length mm 1000 : (6.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ____ Control lever position degrees: 46...54 BEGINNING OF DELIVERY Test pressure, bar: 30...32 Setting point: Speed rpm : 800 Prestroke mm : 3.00...3.10 Rack travel in mm: 0.6 : (2.95...3.15) Rack travel in mm : 9.00...12.00 Testing:

J28

1st rack travel in: 10.70 Speed rpm : 1040...1050 2nd rack travel in: 4.00 Speed rpm : 1070...1100 4th rack travel in: 1275 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 400' Rack travel in mm: 5.7 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm: 5.60...5.80 Rack travel in mm: 2.00 rpm : 480...540 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 145.5...148.5 1000 s: (143.0...151.0) cm3 : 3.50 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 1040...1050 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) Rack travel in mm : 19.00...21.00 LOW IDLE 1000 s: (5.00) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 6.0 D 50 Test sheet Edition : 24.06.88

Replaces

Test oil : ISO-4113

: 0 403 476 027 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

: RSV350...1300MW1A316 Governor design.

-6

: 0 420 985 998 Governer no.

Customer-spec. information Customer : DB

: 0M366A Engine

1st version kW : 125.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nezzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 7.2...7.4

100 s: (7.0...7.6)

cm3 : 0.3 Spread

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm: 7.0...7.6 Del.quantity cm3/: 0.9...1.1

100 s: (0.7...1.3)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Del.quantity : 72.0...74.0

1000 : (70.0...76.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 54...62

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.70

rpm : 1340...1345 Speed 2nd rack travel in: 4.00 rpm : 1380...1393 Speed 3rd rack travel in: 4.00 Speed rpm : 1400...1430 4th rack travel in: 1450 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 12...20 Speed rpm : 350 Rack travel in mm : 7.00...7.60 Rack travel in mm : 2.00 Speed rpm : 445...505 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.70...10.80 2nd speed rpm : 700 Rack travel in m: 12.30...12.40 3rd speed rpm : 825 Rack travel in m: 11.90...12.10 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 700 Del.quantity cm3/: 69.0...71.0 1000 s: (67.0...73.0) cm3 : 5.00Spread 1000 s: (7.0) Speed rpm : 825 Del.quantity cm3/ : 73.0...75.0 1000 s: (71.0...77.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1340...1345 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00 LOW IDLE

Del.quantity cm3/: 9.0...11.0 1000 s: (7.0...13.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

K03

Speed rpm : 350 Rack travel in mm : 7.00...7.60

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 5.7 A 17 : 20.05.88 Test sheet Edition : 12.85 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 028 Injection pump Pump designation : PES6MW100/720RS1125 EP type number : 0 413 406 119 Governor Governor design. : RSV300...1300MW0A317 Governor no. : 0 420 085 045 Customer-spec, information Customer : DB Engine : 0M 362 LA 1st version kW : 141.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30 : (3.15...3.35) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread -----

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.0 Del.quantity cm3/: 1.1...1.5

100 s: (0.9...1.7)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed Aneroid pressure h: 900

Del.quantity : 96.0...98.0 1000 : (94.0...100.0) Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 55...63

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.80

Speed rpm : 1330...1340

2nd rack travel in: 4.00

Speed rpm : 1400...1430

4th rack travel in: 1560

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 12...20

Setting point w/out bumper spring

rpm : 300° Rack travel in mm: 5.9

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm : 5.90...6.00

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed hPa : 900 Pressure

Rack travel mm : 11.80...11.90

Measurement

Speed 1/min: 500

1st pressure hPa : 350

Rack travel in m: 10.50...10.70

2nd pressure hPa : 450

Rack travel in m: 11.40...11.60

3rd pressure hPa : -

Rack travel in m: 9.70...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 800 Speed

Del.quantity cm3/: 97.0...99.0 1000 s: (95.0...101.0) cm3 : 5.00 1000 s: (7.0)

Spread

Aneroid pressure h:

rpm : 500 Speed

Del.quantity cm3/: 46.0...48.0

1000 s: (44.0...50.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.00
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 45 : 20.05.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 476 029 Injection pump Pump designation : PES6MW100/720RS1144 EP type number : 0 413 406 138 Governor : RSV350...1200MW1A316 Governor design. -1 Governer no. : 0 420 085 048 Customer-spec. information Customer Engine : 0M366A 1st version kW : 110.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test neggle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY

Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1200 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 6.9...7.1

100 s: (6.7...7.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.4...7.0 Del.quantity cm3/: 0.9...1.1 100 s: (0.7...1.3) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Del quantity : 69.0...71.0 1000 : (67.0...73.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 52...60

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.80

Speed rpm : 1240...1245 2nd rack travel in: 4.00 Speed rpm : 1280...1293
3rd rack travel in: 4.00
Speed rpm : 1300...1330 4th rack travel in: 1360 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 12...20 Rack travel in mm: 2.00 Speed rpm : 465...525 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 9.90...10.10
2nd speed rpm : 750
Rack travel in m: 10.60...10.70 3rd speed rpm : 950 Rack travel in m: 10.30...10.40 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 56.0...58.0 1000 s: (54.0...60.0) Spread cm3: 5.00 1000 s: (7.0) rpm : 900 Speed Del.quantity cm3/: 71.0...73.0 1000 s: (69.0...75.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.80 Speed rpm : 1240...1245 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.40...7.00 Del.quantity cm3/: 9.0...11.0 1000 s: (7.0...13.0)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6.0 D 44 : 20.05.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 476 036 Injection pump Pump designation : PES6MW100/720RS1129 EP type number : 0 413 406 121 Governor Governor design. : RSV350...1300MW0A317 -1 : 0 420 085 051 Governer no. Customer-spec. information Customer Engine : OM 366 LA : 150.0 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nezzie holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1280 Rack travel in mm : 11.50...11.60 Del.quantity cm3/: 9.7...9.9 100 s: (9.5...10.1) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1280 Aneroid pressure h: 900 : 97.0...99.0 Del.quantity 1000 : (95.0...101.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 56...64 Setting point: rpm : 800 Speed

Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.50 Speed rpm : 1320...1330

2nd rack travel in: 4.00

rpm : 1385...1415 Speed 4th rack travel in: 1450 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.6 Testing: Speed rpm : 100 Minimum rack trave: 7.60 Speed rpm : 350 Rack travel in mm : 5.50...5.70 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : − Pressure Rack travel mm : 9.50...9.60 Measurement

1/min : 500 Speed 1st pressure hPa : 175 Rack travel in m: 10.00...10.20

2nd pressure hPa : 300 Rack travel in m: 10.80...11.00

3rd pressure hPa : 900

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 750 Del.quantity cm3/: 85.0...89.0

1000 s: (83.0...89.0)

cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0)

BREAKAWAY

1st version

K09

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm: 5.50...5.70

Del.quantity cm3/: 8.0...12.0

1000 s: (6.0...14.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks : MB 6,0 D 41 : 19.05.88 Test sheet Phasing : 0-60-120-180-240-300 Edition Replaces Tolerance $+ - \circ$: 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 476 037 1st speed rpm : 1280 Injection pump Pump designation : PES6MW100/720RS1130 Rack travel in mm : 11.00...11.20 EP type number : 0 413 406 122 Del.quantity cm3/ : 7.7...7.9 Governor Governor design. : RSV350...1300MW0A318 Governor no. : 0 420 085 052 100 s: (7.5...8.1) Customer-spec. information cm3 : 0.3 Spread Customer : DB 100 s: (0,6) Engine : OM 366 A 2nd speed rpm: 750.0 Rack travel in mm: 11.7...11.8 Del.quantity cm3/: 0.9...1.3 1st version kW : 125.0 : 2600 Rated speed 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 rpm : 800 Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder assembly : 0 681 343 009 1st version Speed rpm : 1280 Opening : 77.0...79.0 Del.quantity 1000 : (75.0...81.0) cm3 : 3.50 pressure, bar : 172...175 Spread 1000 : (6.00) Test lines : 1 680 750 015 RATED SPEED Outside diameter x Wall thickness 1st version : 6.00x1.50x600 x Length mm Control lever position degrees: 55...63 (A) Injection pump setting values Insp. values in parentheses Setting point: rpm : 800 Set equal delivery quant. Speed per values Rack travel in mm: 0.6 BEGINNING OF DELIVERY Testing: Test pressure, bar: 30...32 1st rack travel in: 10.00 Speed rpm : 1320...1330 : 3.70...3.80 Prestroke mm 2nd rack travel in: 4.00 : (3.65...3.85) Speed rpm : 1380...1410 Rack travel in mm : 9.00...12.00 4th rack travel in: 1560

Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 25...33 Setting point w/out bumper spring rpm : 350° Rack travel in mm: 8.0 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 8.00...8.10 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1280 Rack travel in m: 11.00...11.20 2nd speed rpm : 750 Rack travel in m: 11.70...11.80 3rd speed rpm : 825 Rack travel in m: 11,40...11.60 FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 72.0...74.0 1000 s: (70.0...76.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1320...1330 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

rpm : 350 Rack travel in mm : 8.00...8.10 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

LOW IDLE

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 46 Edition : 08.06.88

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 055

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design. : RSV350...1200MW1A316

: 0 420 085 097 Governer no.

Customer-spec. information Customer

Engine : 0M366A

1st version kW : 92.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nezzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 9.60...9.70

Del.quantity cm3/: 6.0...6.2

100 s: (5.8...6.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.3...6.9 Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 15.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 60.0...62.0 1000 : (58.0...64.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.60

rpm : 1240...1245 Speed 2nd rack travel in: 4.00 rpm : 1263...1276 Speed 3rd rack travel in: 4.00 Speed rpm : 1290...1320 4th rack travel in: 1450 Speed rpm : 0.30...1.70 5th rack travel in: 1240...1255 rpm : 8.60 Speed LOW IDLE 1 Setting point w/out bumper spring

Setting point w/out bumper s Speed rpm : 350 Rack travel in mm : 6.6

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00
Speed rpm : 415...475

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.60...9.70
2nd speed rpm : 800
Rack travel in m: 10.50...10.60
3rd speed rpm : 950
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.60 Speed rpm : 1240...1245

STARTING FUEL DELIVERY

LOW IDLE

K13

Speed rpm: 350

Rack travel in mm : 6.30...6.90 Del.quantity cm3/ : 9.0...11.0 1000 s: (6.0...14.0)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6.0 D 18 : 20.05.88 Test sheet Edition Replaces : 14.11.86 Test oil : ISO-4113 Combination no. : 0 403 476 057 Injection pump Pump designation : PES6MW100/720RS1129-: 0 413 406 140 EP type number Governor Governor design: RSV300...1300MW0A324 Governer no. : 0 420 085 079 Customer-spec. information Customer : OM 366 LA Engine 1st version kW : 150.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nezzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm : 1280 1st speed Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 9.3...9.5 100 s: (9.1...9.7) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm: 300.0 Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1280 Aneroid pressure h: 900 Del.quantity : 93.0...95.0 1000 : (91.0...97.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 56...64 Setting point: Speed rpm: 800 Rack travel in mm: 0.6 Testing: 1st rack travel in: 10.90 Speed rpm : 1320...1330 2nd rack travel in: 4.00

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Speed rpm : 1385...1415 4th rack travel in: 1450 Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 22...30 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.60 Speed rpm: 300

Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed Pressure hPa : -

Rack travel mm : 9.90...10.00

Measurement

Speed 1/min: 500

1st pressure hPa : 175

Rack travel in m: 10.40...10.60

2nd pressure hPa : 300

Rack travel in m: 11.20...11.40

3rd pressure hPa : 900

Rack travel in m: 11.90...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 750 Speed

Del.quantity cm3/: 83.0...87.0 1000 s: (81.0...89.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : MB 6,0 D 38 : 0-60-120-180-240-300 Phasing : 30.05.88 Edition Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 476 059 rpm : 1230 1st speed Injection pump Pump designation : PES6MW100/720RS1130 Rack travel in mm : 10.90...11.00 EP type number : 0 413 406 122 Governor Del.quantity cm3/ : 7.8...8.0 Governor design. : RSV575...1250MW0A325 Governer no. : 0 420 085 083 100 s: (7.6...8.2) Customer-spec. information cm3 : 0.3Spread Customer 100 s: (0.6) Engine : OM 366 A 2nd speed rpm : 575.0 1st version kW : 125.0 Rack travel in mm: 5.6...5.7 : 2500 Del.quantity cm3/: 0.9...1.3 Rated speed 100 s: (0.7...1.5) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 rpm : 800 Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 1230 Speed : 78.0...80.0 Opening Del.quantity 1000 : (76.0...82.0) pressure, bar : 172...175 cm3 : 3.50 Spread 1000 : (6.00) Test lines : 1 680 750 015 RATED SPEED Outside diameter x Wall thickness 1st version : 6.00X1.50X600 x Length mm Control lever position degrees: 46...54 (A) Injection pump setting values Insp. values in parentheses Setting point: rpm : 800 Set equal delivery quant. Speed per values ____ Rack travel in mm: 0.6 BEGINNING OF DELIVERY Testing: Test pressure, bar: 30...32 1st rack travel in: 9.90 rpm : 1270...1280 Speed : 3.70...3.80 2nd rack travel in: 4.00 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

K16

Speed rpm : 1300...1330

4th rack travel in: 1350

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

Speed rpm : 575 Rack travel in mm: 5.6

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 575

Rack travel in mm : 5.60...5.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

: 600 Speed rpm

Del.quantity cm3/: 55.0...59.0 1000 s: (53.0...61.0) Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 1270...1280

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 575

Rack travel in mm : 5.60...5.70 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,2 N Edition : 18.08.89 Replaces Test oil : ISO-4113 : 0 403 476 068 Combination no. Injection pump Pump designation : PES6MW100/320RS1153-EP type number : 0 413 406 162 Governor Governor design. : RSV300...750MW1A802 Governer no. : 0 420 085 113 Customer-spec. information Customer Engine : D0826LE20 1st version kW : 116.0 : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening. pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.00...3.10 Prestroke mm : (2.95...3.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm: 700 1st speed Rack travel in mm : 12.30...12.40 Del.quantity cm3/: 14.3...14.5 100 s: (14.1...14.7) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm: 300.0 Rack travel in mm: 6.9..7.1 Del.quantity cm3/: 3.3...3.7 100 s: (3.0...3.9) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed : 143.0...145.0 Del.quantity 1000 : (141.0...147.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 30...38 Setting point: Speed rpm: 800 Rack travel in mm: 0.6 Testing: 1st rack travel in: 11.30 Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm: 777...790

4th rack travel in: 950

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 7.0 Speed rpm : 300

Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00 Speed rpm : 400...460

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 750...755

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.90...7.10 Del.quartity cm3/: 33.0...37.0 1000 s: (30.5...39.5) Spread cm3: 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 68 Edition : 14.07.89 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 071 Injection pump Pump designation : PES6MW100/720RS1130-: 0 413 406 164 EP type number Governor Governor design. : RSV350...1300MW0A318 Governer no. : 0 420 085 117 Customer-spec. information Customer : DB-NKW Engine : OM 366 A 1st version kW : 125.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening. pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 K20

: 3.70...3.80 : (3.65...3.85) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1280 Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 7.7...7.9 100 s: (7.5...8.1) cm3 : 0.3Spread 100 s: (0.6) 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1280 Speed : 77.0...79.0 Del.quantity 1000 : (75.0...81.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 46...54 Setting point: rpm : 800 Speed

Rack travel in mm: 0.6

Testina:

1st rack travel in: 10.00 Speed rpm : 1320...1330

2nd rack travel in: 4.00

Speed rpm : 1380...1410

4th rack travel in: 1560

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 7.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm: 350
Rack travel in mm: 7.40...7.60

Rack travel in mm : 2.00

Speed rpm : 400...460

SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1280

Rack travel in m: 11.00...11.10

2nd speed rpm : 750

Rack travel in m: 11.70...11.80

3rd speed rpm : 825

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

1000 s: (69.0...77.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

K21

LOW IDLE

Speed rpm: 350 Rack travel in mm: 7.40...7.60 Del.quantity cm3/ : 9.0...13.0

1000 s: (7.0...15.0)

Spread cm3 : 3.50

1000 s: (5.50)

:

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 75 Test sheet : 15.08.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 476 075 Injection pump Pump designation : PES6MW100/720RS1130 EP type number : 0 413 406 122 Governor Governor design. : RSV350...750MW0A336-: 0 420 085 124 Governer no. Customer-spec. information Customer : DB-NKW Engine : 0M366A 1st version kW : 84.0 Rated speed : 1500 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nezzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 8.0...8.2 100 s: (7.8...8.4) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm : 7.4...7.6 Del.quantity cm3/ : 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Deliquantity : 80.0...82.0 1000 : (78.0...84.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 24...32 Setting point: rpm : 800 Speed Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.00 rpm : 750...755 Speed 2nd rack travel in: 4.00 rpm : 775...788 Speed

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

4th rack travel in: 800

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 11...19
Setting point w/out bumper spring

Speed rpm: 350 Rack travel in mm: 7.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 350

Rack travel in mm : 7.40...7.60

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7.40...7.60 Del.quantity cm3/: 9.0...13.0

1000 s: (7.0...15.0)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

When setting the governor, the throttle screw of damper 1 must be open 1 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 F Edition : 15.08.89 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 076 Injection pump Pump designation : PES6MW100/720RS1120-EP type number : 0 413 406 172 Governor Governor design. : RSV350...1300MW0A2-1 : 0 420 085 125 Governer no. Customer-spec. information Customer : DB-NKW Engine : OM 366 LA 1st version kW : 142.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing

: 0.50 (0.75)

BASIC SETTING

Tolerance + - 0

1st speed rpm : 1300 Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 9.4...9.6 100 s: (9.2...9.8) Spread cm3 : 0.3

100 s: (0.6)

100 s: (0.5)

rpm : 350.0 2nd speed Rack travel in mm : 6.2...6.9 Del.quantity cm3/: 1.0...1.2 100 s: (0.6...1.5) cm3 : 0.3Spread

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1300 Aneroid pressure h: 700 Del.quantity : 94.0...96.0 1000 : (92.0...98.0) cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 56...64

Setting point: rpm : 800 Speed Rack travel in mm: 0.6

Testing: 1st rack travel in: 12.00 Speed rpm : 1340...1345 2nd rack travel in: 4.00

rpm : 1427...1440 Speed 3rd rack travel in: 4.00

rpm : 1460...1490 Speed

4th rack travel in: 1600 Speed rpm : 0.30...1.70 5th rack travel in: 1335...1350

rpm : 12.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350

Rack travel in mm : 6.20...6.90

Rack travel in mm : 2.00 Speed rpm : 420...480

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed ĥPa :-Pressure

Rack travel mm : 11.60...11.70

Measurement

Speed 1/min: 500

1st pressure hPa : 300

Rack travel in m: 12.10...12.20 2nd pressure hPa : 360

Rack travel in m: 12.60...12.90

3rd pressure hPa : 700

Rack travel in m: 13.00...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 800

Del.quantity cm3/: 86.0...89.0

1000 s: (83.5...91.5)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 49.0...51.0

1000 s: (47.0...53.0)

BREAKAWAY

1st version

K25

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 85.0...95.0
 1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0

1000 s: (6.5...15.5) cm3 : 3.50

Spread 1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 D 76 Phasing : 0-60-120-180-240-300 Edition : 15.08.89 Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 476 977 1st speed rpm: 1300 Injectic pump Pump designation : PES6MW100/720RS1144 Rack travel in mm : 11.80...11.90 EP type number : 0 413 406 138 Governor Del.quantity cm3/: 8.5...8.7 Governor design.: RSV350...1300MW0A3 Governor no.: 0 420 085 126 100 s: (8.3...8.9) Customer-spec. information Spread cm3 : 0.3Customer : DB-NKW 100 s: (0.6) Engine : OM 366 LA rpm : 350.0 2nd speed Rack travel in mm: 6.2...6.9 1st version kW : 127.0 : 2600 Rated speed Del.quantity cm3/: 1.0...1.2 100 s: (0.6...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 1300 Speed Opening. Del.quantity : 85.0...87.0 1000 : (83.0...89.0) pressure, bar : 172...175 cm3 : 3.50 Spread 1000 : (6.00) Test lines : 1 680 750 015 RATED SPEED Outside diameter x Wall thickness 1st version : 6.00x1.50x600 x Length mm Control lever position degrees: 49...57 (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. rpm : 800 Speed per values Rack travel in mm: 0.6 Testing:

1st rack travel in: 12.00

2nd rack travel in: 4.00

3rd rack travel in: 4.00

Speed

Speed rpm : 1340...1345

rpm : 1397...1410

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.65...3.75 : (3.60...3.80)

Rack travel in mm : 9.00...12.00

rpm : 1430...1460 Speed 4th rack travel in: 1550 rpm : 0.30...1.70 Speed 5th rack travel in: 1335...1350 Speed rpm : 10.80 LOW IDLE 1 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.20...6.90 Rack travel in mm: 2.00 Speed rpm : 440...500 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.80...11.90 2nd speed rpm : 800 Rack travel in m: 12.10...12.20 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 75.0...78.0 1000 s: (72.5...80.5) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 Speed rpm : 1340...1345 STARTING FUEL DELIVERY LOW IDLE rpm : 350 Speed Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0 1000 s: (6.5...15.5)

Spread cm3 : 3.50 1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 74 : 15.08.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 476 078 Injection pump Pump designation : PES6MW100/720RS1129 EP type number : 0 413 406 121 Governor Governor design. : RSV350...750MW0A336 Governer no. : 0 420 085 127 Customer-spec. information Customer : DB-NKW Engine : OM 366 LA 1st version kW : 94.0 : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina | pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.70...3.80

Rack travel in mm : 9.00...12.00

: (3.65...3.85)

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 12.50...12.60 Del.quantity cm3/: 8.5...8.7 100 s: (8.3...8.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed : 85.0...87.0 Deliquantity 1000 : (83.0...89.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 24...32 Setting point: rpm : 800 Rack travel in mm: 0.6 Testing: 1st rack travel in: 11.50 Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm: 775...788 4th rack travel in: 820

Firing order

: 1-5-3-6-2-4

K28

Prestroke mm

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 8,7 p 2 Edition : 20.6.88 Replaces : 12.9.86 Test oil : ISO-4113

Combination no. : 0 403 564 008

Injection pump

Pump designation : PE6MW100/720RS1126 : 0 413 506 101

EP type number

Governor

Governor design. : RQ300...1250MW12-2

Governer no.

: 0 420 082 020

Customer-spec. information

Customer

: DAIMLER BENZ

Engine

: 0M360A

1st version kW : 147.00

Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32 Prestroke mm : 3.80...3.90 : (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

L02

Phasing : 0-60-120-180-240-300

0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 9.70...9.90

100 s: (9.50...10.10)

cm3 : 0.35Spread

> 100 s: (0.60) ______

2nd speed rpm : 300

Rack travel in mm : 8.60...8.70 Del.quantity cm3/: 1.00...1.40

100 s: (0.70...1.60)

cm3 : 0.35 Spread

100 s: (0.50)

GUIDE SLEEVE POSITION Control-lever position Degree: -2

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 97.00...99.00 Del.quantity

1000 : (95.0..101.0) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.90

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

Speed rpm : 1415...1445 3rd rack travel in: 0.10...1.00

Speed rpm : 1550

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 8.60...8.70

Testing:

Speed rpm : 220 Minimum rack trave: 10.40 Speed rpm: 300
Rack travel in mm: 8.60...8.70
Rack travel in mm: 2.00
Speed rpm: 430...470

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 47,6 c : 31.8.89 : 23.3.87 Edition Replaces Test oil Edition : ISO-4113

Combination no. : 0 406 030 999

Injection pump

Pump designation : PEV12ZWM160/12ORS

1030/11

EP type number : 0 416 060 999

Governor

Governor design. : RQU425...600/1300ZWA

62-1

Governer no. : 0 422 405 016

Customer-spec. information Customer : MTU

: MB 873 Engine

TEST BENCH REQUIREMENTS

Test oil

Outlet temp, °C : 42...45

Overflow valve

Inlet press., bar: 3.0

Overflow

quantity min. 1/h: 600...720

Test nozzle holder

assembly : 0 681 443 022

Opening

pressure, bar : 172...175

Test lines : 1 680 750 069

Outside diameter x Wall thickness

: 8,00X2,00X1500 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm: 12.00

Firing order : 12-9-3-6-8-11-1-4-10

-7-5-2

Phasing : 0-15-60-75-120-135-

180-195-240-255-300-

315

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm: 9.00

Del.quantity cm3/ : 24.5...26.3 *

100 s: (24.2...26.6)

Spread cm3 : 1.8

100 s: (2.7)

rpm : 425 2nd speed Rack travel in mm : 6.80 Del.quantity cm3/ : 7.9...8.7

100 s: (-) cm3 : 1.6 100 s: (-)

1st speed rpm : 1300 Rack travel in mm : 9.00 Del.quantity cm3/ : 22.2..24.0**

100 s: (21.9..24.3)

Spread cm3 : 1.8 100 s: (2.7)

2nd speed rpm : 425 Rack travel in mm: 6.80

GUIDE SLEEVE POSITION Control-lever position

Degree: 45...55 rpm : 800

Rack travel in mm : 12.00...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

Speed rpm : 1300
Del.quantity : 375.0...379.0 *

1000 : (372.0...382.0)

cm3 : 8.0 Spread

1000 : (12.0)

2nd version

Speed rpm : 1300
Del.quantity cm3/ : 357.0...361.0**

1000 s: (354.0...361.0)

L04

Spread

cm3 : 8.0

1000 s: (12.0)

RATED SPEED

1st version Control lever

position degrees: 48...54

Setting point:

Speed rpm : 1300 Rack travel in mm: 13.8

Testing:

1st rack travel in: 12.80 Speed rpm : 1325...1340

2nd rack travel in: 4.00

грт : 1420...1460 Speed

4th rack travel in: 1470...1550

Speed rpm : <0.01

SET IDLE CONTROL LEVER

POSITION

rpm : 425 Speed Rack travel in mm: 6.80

Control lever

position degrees: 15...21

LOW IDLE 1

rpm : 425 Speed

Rack travel in mm : 6.70...6..90

BREAKAWAY

1st version

1mm rack travel less than'

full load rack tr: 12.80

rpm : 1325...1340 Speed

INTERMEDIATE RATED SPEED

Control lever

position degrees: 28...34

Rack travel in mm: 6.50

: 600 Speed rpm

Remarks:

 \pm = Bank A = cyl. 1-3-5-8-10-12.

** = Bank B = cyl. 2-4-6-7-9-11.

Note mounting and test instructions

KH/VSK 40 JP 1.

Set with adjusting gauge KDEP 1533.

Inlet pressure 3 bar with overflow quantity 10...12 1/min (measured at return).

Instead of oveflow valve, connect a hand valve of minimum nominal size 1/2" into the return.

Oveflow quantity as well as inlet pressure must be observed precisely. Note further that the calibrating-oil temperature 42°...45° C must be measured at the return.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 37,4 C Edition : 20.10.87

Replaces

Test oil : ISO-4113

Combination no. : 0 406 039 111

Injection pump

Pump designation : PE10ZWM160/120ZWA68R

: 0 416 069 001 EP type number

Governor

Governor design. : RQU425/1200ZWA68R

Governer no. : 0 422 407 036

Customer-spec. information

Customer

Engine : MB 838 KA

: 100 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 443 022 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 016

Outside diameter x Wall thickness

: 8,00x2,00x1500 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.50...2.60

: (2.45...2.65)

Rack travel in mm: 12.00

Firing order : 10-3-4-5-6-7-8-1-2-9

L06

: 0-27-72-99-144-171-Phasing

216-243-288-315

Tolerance + - D : 0.50(0.75)

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 15.00

Del.quantity cm3/: 51.5...53.5

100 s: (51.0...54.0)

cm3 : 1.5 Spread

100 s: (2.2)

rpm : 1000 2nd speed Rack travel in mm: 9.00

Del.quantity cm3/ : 26.5...28.5

100 s: (26.0...29.0)

cm3 : 1.5 Spread

100 s: (2.2) rpm : 300

3rd speed Rack travel in mm: 9.00

Del.quantity cm3/ : 15.0...18.0

100 s: (14.5...18.5

cm3 : 2.0 Spread 100 s: (3.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1200

Speed

Rack travel in mm : 18.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

: 505.0...515.0 Del.quantity 1000 : (500.0...520.0)

: 15.0 cm3 Spread

1000 : (22.0)

RATED SPEED

1st version

Control lever

position degrees: 52...58

Testing:

1st rack travel in: 15.00 Speed rpm : 1200 2nd rack travel in: 14.00

Speed rpm : 1225...1240

Special-purpose vehicle

3rd rack travel in: 4.00 Speed rpm : 1312...1352 4th rack travel in: 1339...1389

Speed rpm : 0.01

LOW IDLE 1 Control lever

position degrees: 20...26 Setting point w/out bumper spring

rpm : 425° Rack travel in mm: 6.80

Testing:

Speed rpm : 200 Minimum rack trave: 18.00 Speed rpm : 300

Rack travel in mm : 12.60...16.60

Rack travel in mm: 6.80 Speed rpm : 425 rpm : 1275 Speed Maximum rack trave: 0.01 Rack travel in mm: 1.50

rpm : 600...1200 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.00 Speed rpm : 1225...1240

HIGH IDLE

1st version

Rack travel in mm: 4.00 Spread cm3: 12.0 1000 s: (-)

LOW IDLE

rpm : 425 Speed Rack travel in mm: 6.80

Del.quantity cm3/: 104.0...111.0 1000 s: (-) Spread cm3 : 10.0 1000 s: (-)

Remarks:

Set idle stop at 425 min -1 to a control-rod travel of 6.8 mm.

Limit shutoff stop screw to 1.0 mm.

APPLICATION

L07

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 7,3 b : 09.08.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 258

Injection pump

Pump designation : PES6A80C410/3LS2400Z

Governor

Governor design. : RSV200...900A1B682L

Customer-spec. information

Customer : RUSTON & HORNSBY

Engine : 6 YDA MK II

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30)

Rack travel in mm : 9,00...12,00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

L08

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm: 9,00

Del.quantity cm3/: 5,7...6,2

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

rpm : 200 2nd speed

Rack travel in mm : 6,00 Del.quantity cm3/ : 1,4...2,3

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 36.5...37.5 * Del.quantity

1000 : (36.0...38.0)

2nd version

1000 s: (37.0...39.0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9,30 Speed rpm : 930...940

2nd rack travel in: 5,50

rpm : 960...990 Speed

4th rack travel in: 1100

rpm : 0,30...1,70 Speed

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 200 Speed

Rack travel in mm: 6.00

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 300 Rack travel in mm: 6.40...6.60 Rack travel in mm: 2,00 Speed rpm: 425...475

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900 Del.quantity cm3/ : 36.5...38.5 * 1000 s: (36.0...38.0)

2nd version

Speed rpm : 900 Del.quantity cm3/ : 37.5...38.5 ** 1000 s: (37.0...39.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 930...940

HIGH IDLE

1st version

Speed rpm: 975 Rack travel in mm: 5,50

Remarks:

: * = BX

: ** = BY

APPLICATION

Navy

Note remarks

Test sheet : YDA 7,3 b 1 : 09.08.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 258

Injection pump

Pump designation : PES6A80D410/3LS2400Z

Governor

Governor design. : RSV200...900A1B682L

Customer-spec. information Customer : KIRLOSKAR

: 6 YDA MK II Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

50x600, 50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2.15...2.25 : (2.10...2.30) Prestroke mm Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Phasing : 0-60-120-180 Tolerance + - 0 : 0,50 (0,75)

L10

BASIC SETTING

rpm : 1000 1st speed

Rack travel in mm: 9,00

Del.quantity cm3/: 5,7...6,2

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 6,00 Del.quantity cm3/ : 1,4...2,3

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Del.quantity : 36.5...37.5 * 1000 : (36.0...38.0)

2nd version

Speed rpm : 750
Del.quantity cm3/ : 37.5...38.5 **

1000 s: (37.0...39.0)

RATED SPEED

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9,30 Speed rpm : 930...940

2nd rack travel in: 5,50 Speed rpm : 960...990

4th rack travel in: 1100

rpm : 0,30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 200 Rack travel in mm : 6,00

À

Testing:

rpm : 100 Speed Minimum rack trave: 19,00
Speed rpm: 300
Rack travel in mm: 6.40...6.60
Rack travel in mm: 2,00

Speed rpm : 425...475

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900 Del.quantity cm3/ : 36.5...37.5 ± 1000 s: (36.0...38.0)

2nd version

Speed rpm : 900 Del.quantity cm3/ : 37.5...38.5 ** 1000 s: (37.0...39.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 930...940

HIGH IDLE

1st version

Speed rpm : 975 Rack travel in mm : 5,50

Remarks:

: * = BX

: ** = BY

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS 100 s: (-) Note remarks Spread cm3 : 0,3 Test sheet : KIR 1,9 c Edition : 28.07.89 100 s: (-) Replaces Test oil : ISO-4113 2nd speed rpm : 200 Rack travel in mm: 9,00 Del.quantity cm3/: 2,35...3,35 Combination no. : 9 400 030 296 100 s: (-) Injection pump Pump designation : PES2A80D320RS2490 GUIDE SLEEVE POSITION Governor Control-lever position Governor design: RSV250...1100A4B784D Degree: -3 rpm : 800 Rack travel in mm : 0,30...0,70 Customer-spec. information Customer : KIRLOSKAR Governor spring pre-tension Click setting x :? Engine : RB 2 FULL LOAD DELIV. AT FULL LOAD STOP TEST BENCH REQUIREMENTS 1st version Test oil rpm : 1080 Speed inlet temp. °C : 38...42 Del.quantity : 56,1...58,1 1000 : (-) Inlet press., bar: 1.00 RATED SPEED Test nozzle holder assembly : 0 681 343 009 1st version Control lever Opening. position degrees: 46...54 pressure, bar : 172...175 Testing: (A) Injection pump setting values 1st rack travel in: 16.00 rpm : 890...910 Insp. values in parentheses Speed Set equal delivery quant. 2nd rack travel in: 11.60 Speed rpm: 920...940

3rd rack travel in: 5.70...5.90

Speed rpm: 960

4th rack travel in: 1000

Speed rpm: 2.00...2.40

5th rack travel in: 1100 per values BEGINNING OF DELIVERY Prestroke mm : 2,15...2,25 : (2,10...2,30)
Rack travel in mm : 9,00...12,00 Speed rpm : 0.30...1.00 Firing order : 1-2 LOW IDLE 1 Control lever position degrees: 18...26 : 0-90 Phasing Setting point w/out bumper spring Tolerance + - 0: 0,50 (0,75) Speed rpm : 250 Rack travel in mm: 6.00

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,15...4,55

Testing: Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 150 Rack travel in mm : 11,00...21,00

Rack travel in mm : 6,00 rpm : 230...270 Speed

Speed rpm : 600 Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 10,10...10,50
3rd speed rpm : 500

Rack travel in m: 11,00...11,40

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm: 14,00

Remarks:

Note remarks

Test sheet : KIR 1 a Edition : 28.07.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 297

Injection pump

Pump designation : PES6A80D320RS2493

Governor

Governor design. : RSV250...1100A4B784D

Customer-spec. information

: KIRLOSKAR (MICO) Customer

Engine : RB 6

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00X2,00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30) Rack travel in mm : 9,00...12,00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Phasing : 0-00-120-100
Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,15...4,55

cm3 : 0.3Spread

100 s: (-)

rpm : 200 2nd speed

Rack travel in mm : 9,00 Del.quantity cm3/ : 2,35...3,35

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed

: 56,1...58,1 Del.quantity

1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.00 Speed rpm : 1115...1125 2nd rack travel in: 2.20 Speed rpm : 985...1015

4th rack travel in: 1100

rpm : 0,30...1,00 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm: 6,00

Testing:

rpm : 100 Speed

Minimum rack trave: 19,00 rpm : 250

Rack travel in mm : 5,80...6,20

Speed rpm : 600 Maximum rack trave: 1,00

L14

TORQUE CONTROL

Torque control curve - 1st version 1st speed rpm : 1080

Rack travel in m: 9,00

2nd speed rpm : 750

Rack travel in m: 10,10...10,50

3rd speed rpm : 500

Rack travel in m: 11,00...11,40

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm: 14,00

Remarks:

Note remarks

Test sheet : KIR 3.9 c Edition : 31.07.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 299

Injection pump

Pump designation : PES4A80D320RS2492

Governor

Governor design.: RSV250...1100A4B784D

L

Customer-spec. information
Customer : KIRLOSKAR

Engine : RB 4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9,00

Del.quantity cm3/: 4,15...4,55

100 s: (-)

Spread cm3: 0,3

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 9.00

Rack travel in mm : 9.00 Del.quantity cm3/ : 2,35...3,35

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1080

Del.quantity : 56,1...58,1

1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testing:

1st rack travel in: 16.00

Speed rpm : 890...910

2nd rack travel in: 11.60

Speed rpm : 920...940

3rd rack travel in: 5.80

Speed rpm : 950...970

4th rack travel in: 1000 Speed rpm : 2.00...2.40

5th rack travel in: 1100

Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 6,00

Testing:

L16

Speed rpm: 100
Minimum rack trave: 19,00
Speed rpm: 250
Rack travel in mm: 5,80...6,20
Speed rpm: 600
Maximum rack trave: 1,00

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080 Rack travel in m: 9.00 2nd speed rpm : 750

Rack travel in m: 10,10...10,50 3rd speed rpm : 500 Rack travel in m: 11,00...11,40

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: ?

rpm : 1115...1125 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 14,00

Remarks:

Note remarks

Test sheet Edition : YDA 3,7 a : 09.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 314

Injection pump

Pump designation : PES3A80D410/3LS2428Z

Governor

Governor design: RSV200...900A/B682L

Customer-spec. information

Customer : RUSTON & HORNSBY

Engine : 3 YDA MK 2

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order : 1-2-3

Phasing Phasing : 0-120-240 Tolerance + - 0 : 0,50 (0,75)

L18

BASIC SETTING

rpm : 1000 1st speed

Rack travel in mm : 9,00

Del.quantity cm3/: 5,7...6,2

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

2nd speed rpm : 200 Rack travel in mm: 6,00
Del.quantity cm3/: 1,4...2,3
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 73,0...75,0

1000 : (72,0...76,0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9,30 Speed rpm: 930...940 2nd rack travel in: 5,50

Speed rpm : 965...995

4th rack travel in: 1100

rpm : 0,30...1,70 Speed

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 200 Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 425...475

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm: 930...940

HIGH IDLE

1st version

Speed rpm : <960 Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

Note remarks

Test sheet : YDA 4,9 c Edition : 09.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 315

Injection pump

Pump designation : PES4A80D410/3LS2404Z

Governor

Governor design. : RSV200...900A/B682L

Customer-spec. information

Customer : RUSTON & HORNSBY

Engine : 4 YDA MK 2

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00x1,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 Prestroke mm

: (2,10...2,30) Rack travel in mm: 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

L20

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm3/ : 5,7...6,2

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 6,00
Del.quantity cm3/: 1,4...2,3
100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 73,0...75,0

1000 : (72,0...76,0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9,30

Speed rpm : 930...940

2nd rack travel in: 5,50

Speed rpm : 965...995

4th rack travel in: 1100

rpm : 0,30...1,70 Speed

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 200 Speed Rack travel in mm: 6,00

Testing:

Speed rpm : 100 Minimum rack trave: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 425...475

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 930...940

HIGH IDLE

1st version

Speed rpm : <960 Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

Note remarks

Test sheet : KIR 1 b : 01.08.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 318

Injection pump

Pump designation : PES4A65D32ORS1323

Governor

Governor design. : RSV300...1750A0B2016

Customer-spec. information

: KIRLOSKAR (MICO) Customer

Engine : RE 4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 1,90...2,00 Prestroke mm : (1,85...2,05) Rack travel in mm : 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

L22

1st speed rpm: 1000

Rack travel in mm : 12,00

Del.quantity cm3/: 5,1...6,1

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

rpm : 200 2nd speed Rack travel in mm: 6,00

Del.quantity cm3/ : 0,85...1,65

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 32,0...34,0 Del.quantity

1000 : (31,0...35,0)

RATED SPEED

1st version Control lever

position degrees: 66...74

Testing:

1st rack travel in: 11,00

Speed rpm : 1780...1790 2nd rack travel in: 7.00 Speed rpm : 2085...2115

4th rack travel in: 2250

rpm : 0,30...1,00 Speed

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6,00

Testing:

Speed rpm : 120 Minimum rack trave: 19,00 Speed rpm: 300

Rack travel in mm : 5,80...6,20

Speed rpm : 650 Maximum rack trave: 1,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1750
Del.quantity cm3/ : 31,4...41,4
1000 s: (36,0...42,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11,00 Speed rpm : 1780...1790

HIGH IDLE

1st version

Speed rpm : 1810 Del.quantity cm3/ : 4,5 1000 s: (-)

Remarks:

Note remarks

Test sheet : KIR 1.9 b Edition : 09.08.89 Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 320

Injection pump

Pump designation : PES2A85D32ORS2528

Governor

Governor design.: RSV250...900A1B2015R

Customer-spec. information Customer : KIRLOSKAR

: RDA 2 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 Prestroke mm

: (2,10...2,30)

Rack travel in mm: 9,00...12,00 Firing order: 1-2

Firing order

Phasing : 0-90 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

rpm : 1000 1st speed

Rack travel in mm: 9,00

Del.quantity cm3/: 4,0...4,6

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 200 Rack travel in mm: 6,00 Del.quantity cm3/: 1,2...2,2 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 57,4...58,4 1000 : (57,0...62,0)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 7.80

Speed rpm : 940...960

2nd rack travel in: 3.10

Speed rpm : 1005...1035

4th rack travel in: 1150

rpm : 0.30...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point W/out bumper spring

Speed rpm : 200 Rack travel in mm : 6,00

Testina:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm: 200
Rack travel in mm: 5,80...6,20
Rack travel in mm: 2.10
Speed rpm: 390...410
Speed rpm: 550
Maximum rack trave: 1.00 Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm: 950 Rack travel in mm: 4,00

Remarks:

APPLICATION

Note remarks

: KIR 2,9 b Test sheet Edition : 09.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 321

Injection pump

Pump designation : PES3A85D32ORS2529

Governor

Governor design. : RSV250...900A1B201SR

Customer-spec. information Customer : KIRLOSKAR

Engine : RDA 3

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30)
Rack travel in mm : 9,00...12,00

: 1-3-2 Firing order

Phasing : 0-120-240 Tolerance + - 0 : 0,50 (0,75)

L26

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,0...4,6

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

rpm : 200 2nd speed Rack travel in mm: 6,00 Del.quantity cm3/: 1,2...2,2

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 57,4...58,4 Del.quantity

1000 : (57,0...62,0)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 7.80 Speed rpm : 950

2nd rack travel in: 3.10

Speed rpm : 1005...1035

4th rack travel in: 1150

rpm : 0.30...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm: 6,00

Testing:

rpm : 100 Speed

Minimum rack trave: 19,00

Speed rpm: 200
Rack travel in mm: 5,80...6,20
Rack travel in mm: 2.10
Speed rpm: 390...410
Speed rpm: 550
Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : 950 Rack travel in mm : 4,00

Remarks:

APPLICATION

Note remarks

Test sheet : KIR 3,9 b Edition : 08.08.89 Replaces

Test oil : ISO-4113

: 9 400 030 322 Combination no.

Injection pump

Pump designation : PES4A85D32ORS2530

Governor

Governor design. : RSV250...900A1B2015R

Customer-spec. information Customer : KIRLOSKAR

Engine : RDA 4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 : (2,10...2,30) Prestroke mm Rack travel in mm: 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

L28

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,1...4,5

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

rpm : 200 2nd speed Rack travel in mm: 9,00 Del.quantity cm3/: 1,4...2,4

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 47,4...48,4 1000 : (45,4...50,4)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 7,80

Speed rpm : 935...965 3rd rack travel in: 1,70...4,50

Speed rpm : 1020 4th rack travel in: 1150

Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 200 Rack travel in mm: 6,00

Testing:

rpm : 100 Speed Minimum rack trave: 19,00 Speed rpm: 200
Rack travel in mm: 5,80...6,20
Rack travel in mm: 2.10
Speed rpm: 390...410
Speed rpm: 550
Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : <950 Rack travel in mm : 4,00

Remarks:

APPLICATION

Note remarks

Test sheet : KIR 5,8 b Edition : 08.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 323

Injection pump

Pump designation : PES6A85D32ORS2531

Governor

Governor design.: RSV250...900A1B2015R

Customer-spec. information Customer : KIRLOSKAR

Engine : RDA 6

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

: 2,15...2,25 : (2,10...2,30) Prestroke mm Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Phasing : 0-00-120-16 Tolerance + - 0 : 0,50 (0,75)

MO2

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9,00

Del.quantity cm3/: 4,1...4,5

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

rpm : 200 2nd speed Rack travel in mm : 9,00

Del.quantity cm3/ : 1,4...2,4

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

. 47,4...48,4 1000 : (45,4...50,4) Del.quantity

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 7,80

Speed rpm: 935...965
3rd rack travel in: 1,70...4,50
Speed rpm: 1020

4th rack travel in: 1150 Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 200 Rack travel in mm: 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm: 200
Rack travel in mm: 5,80...6,20
Rack travel in mm: 2.10
Speed rpm: 390...410
Speed rpm: 550
Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm: 915...925

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : <950 Rack travel in mm : 4,00

Remarks:

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KIR 1.9 d Edition : 21.07.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 030 350 Injection pump Pump designation : PES2A85D32ORS2528 Governor Governor design. : RSV250...950A7B2029R Customer-spec. information : KIRLOSKAR Customer : RD 2 Engine TEST BENCH REQUIREMENTS Test oil

inlet temp. OC : 38...42

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure_bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00X2,00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: (2,15...2,25 Prestroke mm Rack travel in mm : 9,00...12,00 Tolerance + - 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm: 6,00

Del.quantity cm3/: 0,45...1,45

MO4

100 s: (-)

cm3 : 0,40Spread

100 s: (-)

rpm : 200 2nd speed

Rack travel in mm: 9.00 Del.quantity cm3/: 1,25...2,25

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 730

54.5...55.5 1000 : (53.5...56.5) Del. quantity

RATED SPEED

1st version Control lever

position degrees: 41...49

Testing:

1st rack travel in: 16.00 rpm : 740...760 Speed 2nd rack travel in: 11.60 rpm : 770...790 Speed 3rd rack travel in: 6.10...6.30

rpm : 810 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 200 Speed Rack travel in mm: 6,00

Testing:

Speed rpm : 100 Minimum rack trave: 17,00 rpm : 200 Speed

Rack travel in mm : 5,80...6,20

Rack travel in mm: 4.20 Speed rpm : 290...310

rpm : 500 Speed Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: ?
Speed rpm : 920...950

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 12,50...13,00

Remarks:

APPLICATION

Note remarks

: KIR 3,9 a 1 : 31.07.89 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 352

Injection pump

Pump designation : PES4A85D32ORS2530

Governor

: RSV250...950A7B2059D Governor design.

Customer-spec. information Customer : KIRLOSKAR

: RD 4 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38..42

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30)
Rack travel in mm: 9,00...12,00
Firing order: 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

M06

1st speed rpm: 1000

Rack travel in mm : 6,00

Del.quantity cm3/: 0,45...1,45

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

rpm : 200 2nd speed Rack travel in mm: 9,00

Del.quantity cm3/: 1,25...2,25

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 730 Speed

; 54,5...55,5 1000 : (53,5...56,5) Del.quantity

RATED SPEED

1st version Control lever

position degrees: 41...49

Testing:

1st rack travel in: 16.00

rpm : 740...760 Speed 2nd rack travel in: 11.60

Speed rpm : 770...790

3rd rack travel in: 6.20 Speed rpm : 795...825

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 200 Rack travel in mm: 6,00

Testing:

rpm : 100 Speed Minimum rack trave: 17,00

Speed rpm : 200 Rack travel in mm : 5,80...6,20 Rack travel in mm : 4.20 Speed rpm : 290...310 Speed rpm : 500 Maximum rack trave: 1,00

BREAKAWAY

1st version

Speed rpm : 920...950

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 12,50...13,00

Remarks:

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : KIR 5,8 a 1 : 28.07.89 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 030 353 Injection pump Pump designation : PES6A8SD32ORS2531 Governor Governor design. : RSV250...950A7B2059R Customer-spec. information Customer : KIRLOSKAR Engine : RD 6 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6,00X2,00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30) Rack travel in mm : 9,00...12,00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

rpm: 1000 1st speed Rack travel in mm : 9,00 Del.quantity cm3/: 3,95...4,55 100 s: (-) Spread cm3 : 0.4100 s: (-) 2nd speed rpm : 200 Rack travel in mm : 9.00 Del.quantity cm3/ : 1.25...2,25 100 s: (-) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0,30...0,70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Del.quantity 58,5...59,5 1000 : (56,5...61,5) RATED SPEED 1st version Control lever position degrees: 51...59 Testing: 1st rack travel in: 14.50 Speed rpm : 900...920 2nd rack travel in: 2.90 rpm : 985...1015 Speed 4th rack travel in: 1080 rpm : 0.30...1.00 Speed LOW IDLE 1

Control lever

position degrees: 8...16 Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 6,00

Testing:

Speed rpm : 100 Minimum rack trave: 17,00 Speed rpm: 250 Rack travel in mm : 5,80...6,20

Rack travel in mm: 4.20

MO8

Speed rpm: 290...310 Speed rpm: 500 Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 920...950

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 12.50...13.00

Remarks:

APPLICATION

Note remarks

Test sheet : KIR 1,9 a Edition : 08.08.89

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 030 354

Injection pump

Pump designation : PES2A85D32ORS2528

Governor

Governor design.: RSV250...1200A1B2058

DR

Customer-spec. information Customer : KIRLOSKAR

: RDA 2 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00X2,00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30)

Rack travel in mm : 9,00...12,00

: 1-2 Firing order

: 0-90 Phasing Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,1...4,7

100 s: (-)

............

Spread cm3 : 0.4

100 s: (-)

rpm : 200 2nd speed Rack travel in mm: 9,00

Del.quantity cm3/: 1,3...2,3

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Del.quantity : 57.0...58.0 1000 : (55.0...60.0)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9,00 Speed rpm : 1250...1260

2nd rack travel in: 5.50 Speed rpm: 1275...1305

4th rack travel in: 1400

rpm : 0,30...1,70 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 200

Rack travel in mm: 6,00

Testing:

M10

Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm : 200

Rack travel in mm : 5,80...6,20

Rack travel in mm: 4.25 Speed rpm : 290...310 Speed rpm : 500 Maximum rack trave: 1,000

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 10,20...10,60
3rd speed rpm : 500

Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 500 Speed

Del.quantity cm3/: 54.6...58.4 1000 s: (53.0...60.0) Speed rpm: 750

Del.quantity cm3/: 54,6...58,4 1000 s: (53,0...60,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

rpm : 1250...1260 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : 1275 Rack travel in mm: 5,50

Remarks:

Note remarks

Test sheet : KIR 2,9 a Edition : 08.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 355

Injection pump

Pump designation : PES3A85D32ORS2529

Governor

Governor design. : RSV250...1200A1B2058

Customer-spec. information Customer : KIRLOSKAR

Engine : RDA 3

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00X2,00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order : 1-3-2 Phasing : 0-120-240 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9,00

Del.quantity cm3/: 4,1...4,7

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 9,00 Del.quantity cm3/ : 1,3...2,3

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

. 57,0...58,0 Del.quantity

1000 : (55.0...60.0)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9.00 Speed rpm : 1250...1260 2nd rack travel in: 5.50

Speed rpm : 1275...1305 4th rack travel in: 1400

rpm : 0,30...1,70 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm: 6,00

Testing:

Speed rpm: 100 Minimum rack trave: 19,00 Speed rpm : 200

Rack travel in mm : 5,80...6,20 Rack travel in mm: 4.25

Speed rpm : 290...310 Speed rpm : 500 Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 9,00 2nd speed rpm : 750

Rack travel in m: 10,20...10,60

3rd speed rpm : 500

Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/: 54,6...58,4

1000 s: (53,0...60,0) Speed rpm: 750 Del.quantity cm3/: 54,6...58,4

1000 s: (53,0...60,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

rpm : 1250...1260 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm: 1275 Rack travel in mm: 5,50

Remarks:

Note remarks

Test sheet : KIR 3,9 a Edition : 08.08.89

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 030 356

Injection pump

Pump designation : PES4A85D32ORS2530

Governor

Governor design. : RSV250...1200A1B2058

Customer-spec. information Customer : KIRLOSKAR

Engine : RDA 4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 Prestroke mm

: (2,10...2,30)
Rack travel in mm: 9,00...12,00
Firing order: 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,1...4,7

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 9,00 Del.quantity cm3/ : 1,3...2,3

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Del.quantity : 57,0...58,0

1000 : (55.0...60.0)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9,00

Speed rpm : 1250...1260

2nd rack travel in: 5,50

Speed rpm : 1275...1305

4th rack travel in: 1400

rpm : 0,30...1,70 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 200 Rack travel in mm: 6,00

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm : 200 Rack travel in mm : 5,80...6,20 Rack travel in mm: 4.25 rpm : 290...310 Speed

rpm : 500 Speed Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 9,00 2nd speed rpm : 750

Rack travel in m: 10,20...10,60

3rd speed rpm : 500 Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 500 Speed

Del.quantity cm3/: 54,6...58,4

1000 s: (53,0...60,0) rpm : 750

Speed rpm

Del.quantity cm3/: 54.6...58.4 1000 s: (53,0...60,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

rpm : 1275 Speed Rack travel in mm: 5,50

Remarks:

Note remarks

Test sheet : KIR 5,8 a Edition : 08.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 357

Injection pump

Pump designation : PES4A85D32ORS2531

Governor

Governor design. : RSV250...1200A1B2058

Customer-spec. information Customer : KIRLOSKAR

: RDA 6 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,1...4,7

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 200

Rack travel in mm : 9,00 Del.quantity cm3/ : 1,3...2,3

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Del.quantity : 57,0...58,0 1000 : (55.0...60.0)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9.00 Speed rpm : 1250...1260

2nd rack travel in: 5,50

rpm : 1275...1305 Speed

4th rack travel in: 1400

Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 200 Rack travel in mm : 6,00

Testing:

Speed rpm: 100 Minimum rack trave: 19,00 Speed rpm : 200

Rack travel in mm : 5,80...6,20

Rack travel in mm : 4.25 Speed rpm : 290...310 Speed rpm : 500

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 9,00
2nd speed rpm: 750
Rack travel in m: 10,20...10,60
3rd speed rpm: 500

Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 500 Speed

Del.quantity cm3/: 54,6...58,4 1000 s: (53,0...60,0) Speed rpm: 750 Del.quantity cm3/: 54,6...58,4 1000 s: (53,0...60,0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

rpm : 1250...1260 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : 1275 Rack travel in mm : 5,50

Note remarks

Test sheet : TAT 5,7 b Edition : 08.08.89

Replaces Test oil : ISO-4113

Combination no. : 9 400 030 428

Injection pump

Pump designation : PES6A90D410RS2574

Governor

Governor design. : RQV300...1400AB1095L

Customer-spec. information Customer : TATA

: 697 D Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30) Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

M18

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm3/: 4,9...5,2

100 s: (-)

Spread cm3 : 0,3

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 9,00 Del.quantity cm3/: 2,0...2,9

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 64,0...65,0

1000 : (62,0...67,0)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 8,70

rpm : 1440...1470 Speed

2nd rack travel in: 4,00

rpm : 1550...1585 Speed

3rd rack travel in: 2,00

rpm : 1595...1630 Speed

LOW IDLE 1

Control lever

position degrees: 11...19

Setting point w/out bumper spring

rpm : 300°

Rack travel in mm : 5,90...6,00

Testing:

Speed rpm : 100

Minimum rack trave: 7,00

Speed rpm: 450
Rack travel in mm: 3,00...4,20
Speed rpm: 760
Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,70 Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 13,70...14,30

Note remarks

Test sheet : KHD 6,1 u Edition : 23.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 432

Injection pump

Pump designation : PES6A80D410RS1334

Governor

Governor design. : RSV325...1150A8B2134

Customer-spec. information Customer

: F6L 912 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00 : (1,85...2,05)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,40...4,60

100 s: (-)

cm3 : 0.3Spread

100 s: (-)

rpm : 200 2nd speed Rack travel in mm : 6,00 Del.quantity cm3/: 0,2...0,8 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Del.quantity : 52,4...55,4

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 8,00

Speed rpm : 1190...1200

2nd rack travel in: 5,50
Speed rpm : 1220...1240
4th rack travel in: 1450
Speed rpm : 0,30...1,70

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 325 Rack travel in mm: 6,00

Testing:

Speed rpm : 200 Minimum rack trave: 19,00 Speed rpm: 325

Rack travel in mm : 5,80...6,20

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 9,00 2nd speed rpm : 900

Rack travel in m: 9,70...9,90
3rd speed rpm : 750

Rack travel in m: 10,30 4th speed rpm : 600

Rack travel in m: 10,70...10,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 750
Del.quantity cm3/: 52,4...55,4
1000 s: (49,4...58,4)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1190...1200

HIGH IDLE

1st version

Speed rpm: 1230 Rack travel in mm: 5,50

Note remarks

Test sheet : YDA 4,9 b Edition : 09.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 442

Injection pump

Pump designation : PES4A90D310/3LS2630

Governor

Governor design.: RSV250...750A7B685L

Customer-spec. information

: RUSTON & HORNSBY Customer

: 4 YDAX Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.15...2.25 : (2.10...2.30) Prestroke mm

Rack travel in mm : 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

M22

BASIC SETTING

rpm : 1000 1st speed

Rack travel in mm : 9,00

Del.quantity cm3/: 6,0...6,5

100 s: (-)

cm3 : 0.4Spread

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 6,00 Del.quantity cm3/ : 3,3...4,5

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 730 Speed

Del.quantity : 97,0...(00,8)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11,00

Speed rpm : 760...765

2nd rack travel in: 5,50 Speed rpm : <785

4th rack travel in: 950

Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 250

Rack travel in mm: 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 17,00

Speed rpm: 250
Rack travel in mm: 5,80...6,20
Rack travel in mm: 2,00
Speed rpm: 425...475

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 760...765

HIGH IDLE

1st version

Speed rpm : <800 Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

Note remarks

Test sheet : YDA 7,3 c Edition : 09.08.89

Replaces Test oil : ISO-4113

Combination no. : 9 400 030 443

Injection pump

Pump designation : PES6A90D310/3LS2631

Governor

Governor design. : RSV250...750A7B685L

Customer-spec. information

: RUSTON & HORNSBY Customer

Engine : 6 YDAX

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 : (2,10...2,30) Prestroke mm Rack travel in mm: 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Phasing : 0-60-120-18 Tolerance + - 0 : 0,50 (0,75)

M24

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 6,0...6,5

100 s: (-)

Spread cm3 : 0,4

100 s: (-)

rpm : 200 2nd speed Rack travel in mm : 6,00 Del.quantity cm3/: 3,3...4,5

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 730 Speed

Del.quantity : 97.6...98.8 1000 : (94.6...100.8)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11,00 Speed rpm : 760...765

2nd rack travel in: 5.50 Speed rpm : <785 4th rack travel in: 950

rpm : 0,30...1,70 Speed

LOW IDLE 1 Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm: 6,00

Testing:

rpm : 100 Speed Minimum rack trave: 17,00

Speed rpm: 250
Rack travel in mm: 5,80...6,20
Rack travel in mm: 2,00
Speed rpm: 425...475

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 760...765

HIGH IDLE

1st version

Speed rpm : <800 Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

Note remarks

Test sheet : YDA 4,9 a Edition : 08.08.89

Replaces Test oil : ISO-4113

Combination no. : 9 400 030 451

Injection pump

Pump designation : PES6A95D310/3LS2636

Governor

Governor design. : RSV250...900A7B685L

Customer-spec. information

: RUSTON & HORNSBY Customer

Engine : 6 YDX MK 2

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30)
Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Phasing : 0-60-120-18Tolerance + - 0 : 0,50 (0,75)

M26

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 6,2...7,7

100 s: (-)

cm3 : 0,4Spread

100 s: (-)

2nd speed rpm : 200 Rack travel in mm: 6,00

Del.quantity cm3/: 0,4...1,5

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Del.quantity : 121,0...123,0

1000 : (119,0...125,0)

RATED SPEED

1st version Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11,0

rpm : 760...765 Speed

2nd rack travel in: 5,50 rpm : <790 Speed 4th rack travel in: 930

rpm : 0,30...1,70 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 250 Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 420...470

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 760...765

HIGH IDLE

1st version Speed rpm : <800 Rack travel in mm : 5,50

Note remarks

Test sheet : YDA 4,9 a Edition : 08.08.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 452

Injection pump

Pump designation : PES4A95D310/3LS2635

Governor

Governor design. : RSV250...900A7B685L

Customer-spec. information

: RUSTON & HORNSBY Customer

Engine : 4 YDX MK 2

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30)

Rack travel in mm : 9,00...12,00

: 1-3-4-2 Firing order

Phasing : 0-90-180-270 Tolerance + - 0 : 0.50 (0.75)

M28

BASIC SETTING

rpm : 1000 1st speed

Rack travel in mm: 9,00

Del.quantity cm3/: 6,2...7,7

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 200 Rack travel in mm : 6,00

Del.quantity cm3/: 0,4...1,5

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 121,0...123,0 Del.quantity

1000 : (119,0...125,0)

RATED SPEED

1st version Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11,0

rpm : 760...765 Speed

2nd rack travel in: 5,50 Speed rpm : <790

4th rack travel in: 930

rpm : 0,30...1,70 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 250

Rack travel in mm : 6,00

Testing:

Speed rpm : 100 Minimum rack trave: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 420...470

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00 Speed rpm : 760...765

HIGH IDLE

1st version

Speed rpm : <800 Rack travel in mm : 5,50

Note remarks

Test sheet : TAT 5,7 a Edition : 08.08.89 Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 465

Injection pump

Pump designation : PES6A90D410RS2657

Governor

Governor design. : RQV300...1400AB1095L

Customer-spec. information Customer : TATA

: 697 D Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30) Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

NO2

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 9,00

Del.quantity cm3/: 4,9...5,2

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

rpm : 200 2nd speed Rack travel in mm : 9,00 Del.quantity cm3/ : 2,0...2,9

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

: 64,0...65,0 Del.quantity

1000 : (62,0...67,0)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 8,70

rpm : 1440...1470 Speed

2nd rack travel in: 4,00

Speed rpm: 1550...1585 3rd rack travel in: 2,00

Speed rpm : 1595...1630

LOW IDLE 1

Control lever

position degrees: 11...19

Setting point w/out bumper spring

Speed rpm: 300 Rack travel in mm: 5,95

Testing:

Speed rpm : 100 Minimum rack trave: 7,00

Speed rpm: 450
Rack travel in mm: 3,00...4,20
Speed rpm: 760
Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,70 Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 13,70...14,30

Note remarks

Test sheet : KIR 3,7 a Edition : 08.08.89 Replaces

Test oil : ISO-4113

Combination no. : 9 400 030 488

Injection pump

Pump designation : PES4A800410RS1319

Governor

Governor design. : RSV250...750A7B2191L

Customer-spec. information Customer : KIRLOSKAR

Engine : HA 494

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 1,90...2,00 : (1,85...2,05) Prestroke mm

Rack travel in mm : 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50 (0,75)

NO4

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,4...4,7

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

rpm : 200 2nd speed Rack travel in mm : 6,00

Del.quantity cm3/: 0,4...0,9

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 730 Speed

: 53,4...54,4 1000 : (52,0...56,0) Del.quantity

RATED SPEED

1st version Control lever

position degrees: 28...46

Testing:

1st rack travel in: 9,30 Speed rpm : 760...765

2nd rack travel in: 5,50

Speed rpm : <790

4th rack travel in: 950

Speed rpm : 0,3...1,7

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 250 Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 320...370

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 760...765

HIGH IDLE

1st version

Speed rpm : 805 Rack travel in mm : 5,50

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MWM 3,9 a : 15.08.89 Edition : 4.85 Replaces : ISO-4113 Test oil

Combination no. : 9 400 085 240

Injection pump

Pump designation : PES4A90D320RS2702 EP type number : 9 400 083 095

Governor

Governor design. : RSV350...1150A2B2129

-4R

: 9 420 083 193 Governer no.

Customer-spec. information Customer

Engine : D 229-4

1st version kW : 75.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.65...2.75 Prestroke mm

: (2.60...2.80)

NO6

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference CS: 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 350.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.0...1.4

100 s: (0.8...1.6)

cm3 : 0.2 Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 63.3...66.5)

: 3.00 Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 8.00

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260 4th rack travel in: 1400

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 20...28

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.2

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

Speed rpm: 350
Rack travel in mm: 5.60...5.80
Rack travel in mm: 2.00

rpm : 560...620 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1150 1st speed

Rack travel in m: 9.00...9.10

2nd speed rpm : 500

Rack travel in m: 10.10...10.20

3rd speed rpm : 800

Rack travel in m: 9.70...9.90
4th speed rpm : 1000

Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/: 61.0...63.0

1000 s: (59.5...64.5)

rpm : 800 Speed

Del.quantity cm3/: 66.0...68.0 1000 s: (63.5...70.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19.00...21.00

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

Note remarks

: FOR 6,6 L 1 Test sheet Edition : 02.05.89 Replaces : 1.9.88 Test oil : ISO-4113

Combination no. : 9 400 085 298

Injection pump

Pump designation : PES6A95D410RS2758 EP type number : 9 400 084 016

Governor

Governor design. : RQV350...1300AB1220-

: 9 420 080 253 Governer no.

Customer-spec. information Customer : FORD FNH

: 6,6 L Engine

1st version kW : 123.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

NO8

: 3.15...3.25 Prestroke mm : (3.10...3.30)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1300 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack cravel in mm: 7.1...7.3 Del.quantity cm3/: 2.0...2.4 100 s: (1.7...2.6)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1335

: 8.00...8.10 travel mm

2nd speed rpm : 350

travel mm : 1.20...1.60

rpm : 500 3rd speed

: 2.90...3.30 travel mm

4th speed rpm : 1000

travel mm : 5,30,..5,70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1530 Speed Rack travel in mm: 8.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 900

Del.quantity : 98.0...100.0 1000 : (96.0...102.0) cm3 : 3.50

cm3 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testing:

1st rack travel in: 12.20

Speed rpm : 1360...1370

2nd rack travel in: 4.00

Speed rpm : 1500...1530

4th rack travel in: 1650

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 67...75

Testing:

rpm : 100 Speed Minimum rack trave: 10.00 Speed rpm : 350

Rack travel in mm : 7.10...7.30 Rack travel in mm : 2.00

Speed rpm : 680...740

CONSTANT REGULATION

rpm : 370...440 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed hPa : 900 Pressure

Rack travel mm : 13.20...13.30

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.70 2nd pressure hPa : 353

Rack travel in m: 11.20...11.30

3rd pressure hPa : 473

Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min: 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 800

Del.quantity cm3/: 87.0...91.0 1000 s: (85.0...93.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 55.0...57.0

1000 s: (53.0...59.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

Speed rpm : 1360...1370

INTERMEDIATE RATED SPEED

Rack travel in mm: 4.00

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 145.0...165.0

1000 s: (140.0...170.0)

Rack cravel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.10...7.30 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEZ 6,1 d

Edition : 02.05.89 Replaces : 1.9.88 Test oil : ISO-4113

Combination no. : 9 400 085 301

Injection pump

Pump designation : PES6A85D410RS2415 EP type number : 0 410 886 907

Governor

Governor design. : RQV300...1325AB1234-

1L

Governer no. : 9 420 080 259

Customer-spec. information

Customer : DEUTZ ARGENTINA

Engine : BF 6L 913

1st version kW : 116.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1325 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 7.7...7.8

100 s: (7.5...8.0)

Spread cm3 : 0.2

100 s: (0.5)

2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.5...1.9
100 s: (1.3...2.1)

cm3 : 0.2Spread 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1400 1st speed

: 8.80...8.90 travel mm

rpm : 300 2nd speed

: 0.80...1.20 travel mm 3rd speed rpm : 600

travel mm

: 2.90...3.30

4th speed rpm : 900

travel mm : 4.80...5.20

rpm : 1200 5th speed

: 6.80...7.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1325 Speed

Del.quantity : 77.0...78.0

1000 : (75.0...80.0)

N10

Spread cm3 : 2.00

1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 10.00

Speed rpm : 1365...1375

2nd rack travel in: 4.00

Speed rpm : 1465...1485

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 300

Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

rpm : 370...530 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1325

Rack travel in m: 11.00...11.10

2nd speed rpm : 500

Rack travel in m: 12.00...12.10

3rd speed rpm : 800

Rack travel in m: 11.80...12.10

4th speed rpm : 1100 Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min: 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0

1000 s: (71.5...78.5)

rpm : 800 Speed

Del.quantity cm3/: 77.5...79.5

1000 s: (75.0...82.0)

rpm : 1100 Speed

Del.quantity cm3/: 78.0...80.0

1000 s: (75.5...82.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm: 100

Rack travel in mm : 19.00...21.00

Note remarks

: MB 6,0 g Test sheet : 15.08.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 305

Injection pump

Pump designation : PES6A95D410RS2772 EP type number : 9 400 084 018

Governor

: RQV300...1300AB1066-Governor design.

: 9 420 080 265 Governer no.

Customer-spec, information

Customer : DAIMLER-BENZ

: OM 366 A Engine

1st version kW : 125.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 006

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

cm3 : 0.3 Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.9...7.1 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0)

cm3 : 0.3 Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

rpm : 500 2nd speed

: 2.30...2.80 travel mm

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1500 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

Del.quantity : 87.5...89.5 1000 : (85.5...91.5)

cm3 : 3.50 Spread

1000 : (6.00)

N12

RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 9.40

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

Speed rpm : 1460...1490

4th rack travel in: 1630

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

rpm : 420...550 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.40...10.50

2nd speed rpm : 700

Rack travel in m: 10.90...11.00

4th speed rpm : 1000 Rack travel in m: 10.60...10.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel mm : 10.90...11.00

Speed

1st pressure hPa : -

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 700 Speed

Del.quantity cm3/: 86.5...89.5

1000 s: (84.0...92.0)

Aneroid pressure h: 700 : 1000 Speed rpm

Del.quantity cm3/: 90.0...93.0 1000 s: (87.5...95.5)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 60.5...62.5 1000 s: (58.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...110.0

Rack travel in mm : 13.90...14.10

Remarks:

hPa : 700 Pressure

Measurement

1/min : 500

Rack travel in m: 9.50...9.70

2nd pressure hPa : 460

Rack travel in m: 10.70...10.80

3rd pressure hPa : 250

Rack travel in m: 9.80...10.00

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Note remarks Test sheet : MB 4,0 f : 15.08.89 Edition Phasing Replaces Tolerance + - 0 Test oil : ISO-4113 Combination no. : 9 400 085 307 Time to cyl. no. Injection pump BASIC SETTING Pump designation : PES4A95D410RS2774 EP type number : 9 400 084 019 1st speed Governor : RQV300...1300AB1228-Governor design. 1L Governer no. : 9 420 080 268 Customer-spec. information Customer : DAIMLER-BENZ Spread Engine : 0M 364 A 1st version kW : 85.0 Rated speed : 2600 2nd speed TEST BENCH REQUIREMENTS Test oil Spread inlet temp. OC : 38...42 Overflow valve : 1 417 413 006 with governor Inlet press., bar: 1.50 Test nozzle holder travel mm : 0 681 343 009 assembly 2nd speed travel mm 3rd speed Opening pressure, bar : 172...175 travel mm 4th speed travel mm : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ 1st version

Firing order : 1- 3- 4- 2 : 0-90-180-270 : 0.50 (0.75) : 1 rpm : 1300 Rack travel in mm : 10.60...10.70 Del.quantity cm3/: 9.0...9.2 100 s: (8.8...9.4) cm3 : 0.3100 s: (0.6) rpm : 300.0 Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 1.2...1.8 100 s: (1.0...2.0) cm3 : 0.3 100 s: (0.5) (B) Setting of injection pump GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 0.80...1.30 rpm : 500 : 2.30...2.80 rpm : 750 : 4.10...4.30 rpm : 1500 : 8.50...8.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1500 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1300 Speed Aneroid pressure h: 700 Del.quantity : 90.0...92.0 1000 : (88.0...94.0) : 3.50 Spread cm3 1000 : (6.00)

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 38...42

: 3.20...3.30

: (3.15...3.45)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 9.60

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1470...1500

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

rpm : 420...550 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.60...10.70

2nd speed rpm : 700

Rack travel in m: 11.20...11.30

4th speed rpm : 1000

Rack travel in m: 10.80...11.00

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 700

Rack travel mm : 11.20...11.30

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 460

Rack travel in m: 11.00...11.10

3rd pressure hPa : 370

Rack travel in m: 10.30...10.50

START CUT-OUT

Speed

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed

rpm : 700

Del.quantity cm3/: 92.0...95.0 1000 s: (89.5...97.5)

Aneroid pressure h: 700

Speed rpm : 1000 Del.quantity cm3/ : 90.5...93.5 1000 s: (88.0...96.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 67.0...69.0

1000 s: (65.0...71.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...110.0 Rack travel in mm: 13.90...14.10

Remarks:

N15

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 g 1 Edition : 15.08.89 Replaces Test oil : ISO-4113 : 9 400 085 308 Combination no. Injection pump Pump designation : PES6A95D410RS2772 EP type number : 9 400 084 018 Governor Governor design. : RQV300...1400AB1065-18L : 9 420 080 278 Governer no. Customer-spec. information Customer : DAIMLER-BENZ Engine : OM 366 : 100.0 1st version kW : 2800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 006 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. BASIC SETTING rpm: 1400 1st speed Rack travel in mm : 9.40...9.50 Del.quantity cm3/ : 6.8...7.0 100 s: (6.6...7.2) cm3 : 0.3Spread 100 s: (0.3) rpm : 300.0 2nd speed Rack travel in mm: 7.1...7.3 Del.quantity cm3/: 0.9...1.5 100 s: (0.7...1.7) cm3 : 0.3 Spread 100 s: (0.3) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 300 1st speed travel mm : 0.80...1.30 rpm : 500 2nd speed : 2.30...2.80 rpm : 750 travel mm 3rd speed : 4.10...4.30 travel mm rpm : 1500 4th speed : 8.50...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1 rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1400 Speed Del.quantity : 68.0...70.0 1000 : (66.0...72.0) cm3 : 3.50 Spread 1000 : (3.50)

RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 8.40

Speed rpm : 1440...1450

2nd rack travel in: 4,00

Speed rpm : 1520...1550 4th rack travel in: 1660

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

Speed rpm : 100 Minimum rack trave: 8.50 rpm : 300 Speed

Rack travel in mm : 7.10...7.30

CONSTANT REGULATION

Speed rpm : 450...480

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 53.5...56.5 1000 s: (51.0...59.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.40

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
Rack travel in mm : 13.70...13.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 q 2 : 15.08.89 Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 085 310 Injection pump Pump designation : PES6A95D410RS2772 EP type number : 9 400 084 018 Governor Governor design.: RQV300...1300AB1066-: 9 420 080 279 Governer no. Customer-spec. information Customer : DAIMLER-BENZ : OM 366 LA Engine 1st version kW : 155.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 006 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.08) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1300 Rack travel in mm : 11.10...11.20 Del.quantity cm3/ : 9.5...9.7 100 s: (9.3...9.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm : 6.9...7.1 Del.quantity cm3/ : 1.2...1.8 100 s: (1.0...2.0) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 0.80...1.30 rpm : 500 2nd speed : 2.30...2.80 travel mm 3rd speed rpm : 750 travel mm : 4.10...4.30 4th speed rpm : 1500 travel mm : 8.50. : 8.50...8.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1500 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 700 Del.quantity : 95.0...99.0)
Societad cm3 : 3.50
- (6.00)

1000 : (6.00)

Prestroke mm

Test pressure, bar: 25...27

: 3.20...3.30 : (3.15...3.35) RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 10.10

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

Speed rpm : 1470...1500

4th rack travel in: 1640

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm: 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

rpm : 420...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa: 700

Rack travel mm : 11.10...11.20

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.70

2nd pressure hPa : 450

Rack travel in m: 10.80...10.90

3rd pressure hPa : 250

Rack travel in m: 9.90...10.10

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm: 700

Del.quantity cm3/: 90.0...93.0

1000 s: (87.5...95.5)

N19

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 60.5...62.5

1000 s: (58.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...110.0 Rack travel in mm: 13.90...14.10

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 10,0 q7 Edition : 21.05.87 : 5.85 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 330 Injection pump Pump designation : PE6P110A320RS3108 EP type number : 0 411 816 727 Governor Governor design. : RQV250...1100PA589-1 Governer no. : 9 420 080 166 Customer-spec. information Customer : VOLVO Engine : THD100 ED TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.20 Test nozzle holder : 0 681 343 009 assembly Opening. pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300 Tolerance + - 0: 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 15.8...16.0 100 s: (15.5...16.3) Spread cm3 : 0.4100 s: (0.8) 2nd speed rpm : 250.0 Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 3.2...3.6 100 s: (-) Spread cm3 : 0.3100 s: (0.6) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 250 1st speed

: 1.20...1.40 travel mm rpm : 500 2nd speed : 4.10...4.80 travel mm rpm : 700 3rd speed : 6.40...6.60 travel mm rpm : 1000 4th speed : 6.40...6.60 travel mm rpm : 1100 5th speed : 7.10...7.40 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1175 Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 700 Speed Aneroid pressure h: 750 : 158.0...160.0 Del.quantity 1000 : (155.0...163.0) cm3 : 4.00 Spread 1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 11.10

Speed rpm : 1160...1170 2nd rack travel in: 4.00

Speed rpm : 1225...1255 4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 6.70 Speed rpm : 250

Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00

rpm : 345...405 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 750 Speed Pressure

Rack travel mm : 12.10...12.20

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.40

2nd pressure hPa : 600

Rack travel in m: 11.30...11.50 3rd pressure hPa : 300

Rack travel in m: 9.60...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/: 105.0...107.0

1000 s: (102.0...110.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1160...1170 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm3/: 160.0...190.0 1000 s: (-)

Rack travel in mm: 20.00...21.00

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CAT 7,0 d 2 Edition : 15.08.89 Replaces : 6.86 Test oil : ISO-4113 Combination no. : 9 400 087 340 Injection pump Pump designation : PES4P100A720LS504 EP type number : 9 400 087 052 Governor Governor design. : RQV350...1100PA798-3 Governer no. : 9 420 080 227 Customer-spec. information Customer : CATERPILLAR Engine : 3304 DINA 1st version kW : 78.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 9 401 087 214 Inlet press., bar: 2.00 Test nozzle holder : 1 688 901 017 assembly Opening. : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter

x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.95...4.05 : (3.90...4.10) Prestroke mm Rack travel in mm : 9.00...12.00 : 1- 3- 4- 2 Firing order

Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1100 1st speed

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 8.9...9.0

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.8...7.0 Del.quantity cm3/: 1.2...1.8 100 s: (1.0...1.9) cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150 : 8.50...8.60 travel mm

2nd speed rpm : 350

: 1.30...1.70 travel mm

3rd speed rpm: 450

: 3.20...3.50 travel mm 4th speed rpm : 600

: 4.40...4.70 travel mm

5th speed rpm : 1000

travel mm : 7.00...7.20

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1150

Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del quantity : 89.5...90.5 1000 : (87.0...93.0) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 63...71

Testing:

1st rack travel in: 9.10

rpm : 1130...1140 Speed

2nd rack travel in: 4.00

Speed rpm : 1195...1225 4th rack travel in: 1320

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...18

Testing:

Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 350

Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

rpm : 320...390 Speed

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/ : 84.5...88.5 1000 s: (82.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 165.0...185.0

1000 s: (161.0...189.0)

Rack travel in mm: 19.00...21.00

N23

LOW IDLE

Speed rpm: 350 Rack travel in mm: 5.10...5.30

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CAT 10,5 i Edition : 15.08.89 Replaces : 8.1.88 Test oil : ISO-4113 Combination no. : 9 400 087 356 Injection pump Pump designation : PES6P100A720LS511 EP type number : 9 400 087 059 Governor Governor design. : RQV350/840...900PA83 Governer no. : 9 420 080 233 Customer-spec. information : CATERPILLAR Customer

Engine : 3306 DIT

1st version kW : 190.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve

: 9 401 087 348

Inlet press., bar: 2.00

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 2...3

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 18.2...18.4

100 s: (18.0...18.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack cravel in mm: 6.4...6.6 Del.quantity cm3/: 1.1...1.7 100 s: (0.8...1.9) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 950 : 8.50...8.60 travel mm

2nd speed rpm : 350

travel mm : 0.50...1.50
3rd speed rpm : 500
travel mm : 2.40...2.60
4th speed rpm : 750

travel mm : 2.40...2.60

5th speed rpm: 850

: 4.00...4.50 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 925

Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

N24

Del.quantity : 182.3...107.3 1000 : (180.0...187.0) Societad cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testing: 1st rack travel in: 11.80 rpm : 910...920 Speed 2nd rack travel in: 4.00 Speed rpm : 930...960 4th rack travel in: 1050 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 8...16 Testing: rpm : 100 Speed Minimum rack trave: 7.00 Speed rpm: 350
Rack travel in mm: 4.70...4.90
Rack travel in mm: 2.00
Speed rpm: 770...830 START CUT-OUT 1/min : 290 (310) Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.80 Speed rpm : 910...920 INTERMEDIATE RATED SPEED Rack travel in mm: 4.00 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Rack travel in mm : 14.00...15.00

Remarks:

N25

LOW IDLE

rpm : 350 Rack travel in mm : 4.70...4.90

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CAT 7₂0 d 3 Edition : 15.08.89 Replaces : 2.5.89 Test oil : ISO-4113 Combination no. : 9 400 087 395 Injection pump Pump designation : PES4P100A720LS504 EP type number : 9 400 087 052 Governor Governor design. : RQV350...1100PA798-3 Governer no. : 9 420 080 227 Customer-spec. information Customer : CATERPILLAR : 3304 DINA Engine 1st version kW : 78.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 9 401 087 214 Inlet press., bar : 2.00 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values

Set equal delivery quant.

per values ____

Test pressure, bar: 2...3

BEGINNING OF DELIVERY

Insp. values in parentheses

Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 4- 2 Phasing : 0-90-180-270 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1100 Rack travel in mm : 10.10...10.20 Del.quantity cm3/: 8.9...9.0 100 s: (8.7...9.3) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm: 6.8...7.9 Del.quantity cm3/: 1.2...1.8 100 s: (1.0...1.9) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1150 travel mm : 8.50...8.60 2nd speed rpm : 350 : 1.30...1.70 travel mm rpm : 450 3rd speed travel mm : 3.20...3.50 4th speed rpm : 600 : 4.40...4.70 travel mm : 1000 5th speed rpm : 7.00...7.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1150 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm: 1100

Prestroke mm

: 3.95...4.05 : (3.90...4.10)

Del.quantity : 89.5...90.5 1000 : (87.0...93.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 9.10 Speed rpm : 1130...1140 2nd rack travel in: 4.00 Speed rpm : 1195...1225 4th rack travel in: 1320 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 350 Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 320...390 Speed

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 700 Del.quantity cm3/: 84.5...88.5 1000 s: (82.5...90.5)

BREAKAWAY 1st version

START CUT-OUT

1mm rack travel less than

full load rack tr: 9.10 Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 165.0...185.0 1000 s: (161.0...189.0) Rack travel in mm: 19.00...21.00

N27

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.10...5.30